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|  | data: ([{"project":{"announcement\_on":null,"approval\_status":1,"city":"Stephentown","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"Tyngsboro","contact\_country":"United States","contact\_email":"rounds@beaconpower.com; brits@beaconpower.com; hebert@beaconpower.com; gene@trevicomm.com","contact\_info\_visible":false,"contact\_name":"Rob Rounds; Barry Brits (CEO); Chris Hebert (Director of Strategy & Finance); Gene Hunt","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"65 Middlesex Road","contact\_zip":"01879","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-02-12T01:53:12Z","created\_by\_id":null,"debt\_investor":"","decommissioning\_on":null,"desc":"This 20 MW plant comprises 200 Beacon Power Series 400 flywheels that provide frequency regulation services to grid operator NYISO. Beacon flywheels recycle energy from the grid in response to changes in demand and grid frequency. When generated power exceeds load, the flywheels store the excess energy. When load increases, the flywheels return the energy to the grid. \r\n\r\nThe flywheel systems can respond nearly instantaneously to the ISO control signal at a rate that is 100 times faster than traditional generation resources. The plant can operate at 100% depth of discharge with no performance degradation over a 20-year lifetime, and can do so for more than 100,000 full charge/discharge cycles. The flywheels are rated at 0.1 MW and 0.025 MWh, for a plant total of 20.0 MW and 5.0 MWh of frequency response.\r\n","developer":"Beacon Power, LLC","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Debt","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"US Department of Energy - Loan Guarantee","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1/Beacon\_Flywheel\_Stephentown.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1/thumb\_Beacon\_Flywheel\_Stephentown.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1/partner\_Beacon\_Flywheel\_Stephentown.png"}},"integrator\_company":"Beacon Power, LLC","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":42.5539158,"longitude":-73.3944466,"master\_project\_id":null,"name":"Beacon Power - (Stephentown, NY) ","om\_contractor":"","organization":"","owner\_1":"Spindle Grid Regulation, LLC","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"<4 second response time, The plant provides over 30% of the Area Control Error correction, doing so with over 95% accuracy.","primary\_reference":"http://beaconpower.com/stephentown-new-york/","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":20000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"New York","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-10-26T05:45:50Z","updated\_at\_by\_admin":"2016-04-29T20:25:25Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Beacon Power, LLC","zip":""}},{"project":{"announcement\_on":"2021-12-13","approval\_status":1,"city":"Oxnard","commissioning\_on":"2022-04-19","companion":"Grid","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"United States","contact\_email":"jeff.pierson@pdenergy.com","contact\_info\_visible":false,"contact\_name":"Jeff Pierson, Senior Vice President, Prudent Energy","contact\_phone":"(301) 825-8910","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-02-12T01:53:13Z","created\_by\_id":null,"debt\_investor":"","decommissioning\_on":null,"desc":"Gills Onions has a bio waste-based advanced energy recovery system that produces methane and biogas from onion production waste. Prudent Energy's Vanadium Redox Battery energy storage system provides peak-shaving and demand charge avoidance services to reduce Gills Onions' monthly electric utility bill.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":1200000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Commercialization Incentive\*","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"California Public Utilities Commission - Self Generation Incentive Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":2,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2/2\_gills\_onions.jpeg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2/thumb\_2\_gills\_onions.jpeg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2/partner\_2\_gills\_onions.jpeg"}},"integrator\_company":"Prudent Energy Corporation","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.1908099,"longitude":-119.1648775,"master\_project\_id":null,"name":"Gills Onions - Prudent Energy VRB-ESS","om\_contractor":"","organization":"Prudent Energy","owner\_1":"Prudent Energy Services Corporation","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.gillsonions.com/node/192","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":600,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"1051 South Pacific Avenue","systems\_integration":null,"technology\_classification":null,"technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-24T02:42:44Z","updated\_at\_by\_admin":"2016-04-29T20:37:14Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Prudent Energy Corporation","zip":"93030"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Kahuku","commissioning\_on":"2022-03-01","companion":"Wind","construction\_on":null,"contact\_city":"Honolulu","contact\_country":"United States","contact\_email":"contact@firstwind.com ","contact\_info\_visible":false,"contact\_name":"First Wind","contact\_phone":"808-695-3300","contact\_state":"Hawaii","contact\_street\_address":"810 Richards St., Suite 650","contact\_zip":"96813","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-02-12T01:53:13Z","created\_by\_id":null,"debt\_investor":"","decommissioning\_on":"2022-07-31","desc":"Younicos installed a 15 MW fully integrated energy storage and power management system designed to provide load firming for a 30 MW wind farm in Hawaii, as well as provide critical grid integration services. The project was supported by a U.S. DOE Office of Electricity loan guarantee. \r\n\r\nA fire destroyed the battery warehouse in August 2012, and due to environmental and safety concerns, it has been replaced with a Dynamic Volt-Amp Reactive system. The wind farm is back at full capacity as of 2/13/14. ","developer":"First Wind","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Office of Electricity and Reliability – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"US Department of Energy, Office of Electricity - Loan Guarantee Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":3,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/3/Xtreme\_Power\_.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/3/thumb\_Xtreme\_Power\_.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/3/partner\_Xtreme\_Power\_.jpg"}},"integrator\_company":"Younicos","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":21.6659535,"longitude":-157.9362559,"master\_project\_id":null,"name":"Kahuku Wind Farm - Younicos","om\_contractor":"","organization":null,"owner\_1":"First Wind","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://energy.gov/lpo/kahuku-wind-power-first-wind","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Ramping ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":15000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Hawaii","status":"De-Commissioned","street\_address":"56-1101 Kamehameha Hwy, ","systems\_integration":null,"technology\_classification":null,"technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-29T20:42:17Z","updated\_at\_by\_admin":"2016-04-29T20:42:17Z","updated\_by":null,"updated\_by\_email":null,"utility":"Hawaiian Electric Company","utility\_type":"Investor Owned","vendor\_company":"Xtreme Power ","zip":"96731"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"George Washington National Forest, Warm Springs","commissioning\_on":"2022-12-01","companion":"Grid","construction\_on":"2022-03-01","contact\_city":"Richmond","contact\_country":"United States","contact\_email":"http://www.dom.com/contact/about-products-services.jsp","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"Virginia","contact\_street\_address":"120 Tredegar Street","contact\_zip":"23219","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1600000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-02-12T01:53:13Z","created\_by\_id":null,"debt\_investor":"","decommissioning\_on":null,"desc":"This project consists of a 3 GW Pumped Hydro storage plant in Virginia that pumps water to an elevated reservoir at night and lets it run back down to generate electricity during the day. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":4,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/4/Bath\_county\_pic.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/4/thumb\_Bath\_county\_pic.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/4/partner\_Bath\_county\_pic.jpg"}},"integrator\_company":"Dominion Generation","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":38.198392,"longitude":-79.8099851,"master\_project\_id":null,"name":"Bath County Pumped Storage Station - Dominion Generation / First Energy","om\_contractor":"","organization":null,"owner\_1":"First Energy","owner\_2":"Dominion Generation","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":40.0,"ownership\_percentage\_2":60.0,"performance":"The publisher of this project declined to state any performance metrics.","primary\_reference":"https://www.dom.com/corporate/what-we-do/electricity/generation/hydro-power-stations/bath-county-pumped-storage-station","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":3003000,"size\_kwh":10.3,"size\_kwh\_hours":10,"size\_kwh\_minutes":18.0,"state":"Virginia","status":"Operational","street\_address":"State Route 705","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-04-29T20:49:06Z","updated\_at\_by\_admin":"2016-04-29T20:49:06Z","updated\_by":null,"updated\_by\_email":null,"utility":"Allegheny Power System","utility\_type":"Investor Owned","vendor\_company":"Dominion Generation","zip":"24484"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Maui","commissioning\_on":"2022-07-01","companion":"Wind","construction\_on":null,"contact\_city":"Honolulu","contact\_country":"United States","contact\_email":"contact@firstwind.com","contact\_info\_visible":true,"contact\_name":"First Wind","contact\_phone":"808-695-3300","contact\_state":"Hawaii","contact\_street\_address":"810 Richards St., Suite 650","contact\_zip":"96813","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-02-12T01:53:14Z","created\_by\_id":null,"debt\_investor":"","decommissioning\_on":null,"desc":"Younicos installed a 1.5 MW Dynamic Power Resource (DPR) as a demonstration project to perform Ramp Control for 3 MW of the 30 MW Kaheawa Wind Farm in Hawaii. The project uses Xtreme's patented Dynamic Power Resource energy storage and power management system.","developer":"First Wind","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":6,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/6/KWP\_I\_photo.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/6/thumb\_KWP\_I\_photo.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/6/partner\_KWP\_I\_photo.jpg"}},"integrator\_company":"Younicos","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":20.7983626,"longitude":-156.3319253,"master\_project\_id":null,"name":"Kaheawa Wind Project - Younicos","om\_contractor":"","organization":"","owner\_1":"First Wind","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.younicos.com/case-studies/maui-hawaii/","primary\_reference1":"http://www.hawaiibusiness.com/batteries-the-other-half-of-hawaiis-energy-future/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Ramping ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1500,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Hawaii","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-01T01:17:25Z","updated\_at\_by\_admin":"2016-05-03T01:12:25Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Maui Electric Company (MECO)","utility\_type":"Investor Owned","vendor\_company":"Xtreme Power ","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Tehachapi","commissioning\_on":"2022-07-01","companion":"Wind","construction\_on":"2022-10-01","contact\_city":"Westminster","contact\_country":"United States","contact\_email":"Kimberly.Nuhfer@netl.doe.gov; Doug.Campbell@sce.com; Naum.Pinsky@sce.com","contact\_info\_visible":false,"contact\_name":"Kim Nuhfer; Doug Campbell; Naum Pinsky","contact\_phone":"; 714-895-0258; 714-895-0645","contact\_state":"California","contact\_street\_address":"14799 Chestnut Street","contact\_zip":"92683","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":49956528.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-02-12T01:53:14Z","created\_by\_id":null,"debt\_investor":"","decommissioning\_on":null,"desc":"The Tehachapi Wind Energy Storage Project, funded by Southern California Edison (SCE) and federal stimulus funding awarded by the Department of Energy as part of the American Recovery and Reinvestment Act of 2009, is positioned to demonstrate the effectiveness of lithium-ion battery and smart inverter technologies to improve grid performance and assist in the integration of variable energy resources. \r\n\r\nThe project is based at SCE’s Monolith Substation in Tehachapi, California and includes a 32 MWh battery energy storage system (BESS) and the associated power conversion system. The project will evaluate the performance of the BESS to improve grid performance and assist in the integration of large-scale variable energy resourced generation. Project performance will be measured with 13 specific operational uses: \r\n\r\n1. Provide voltage support and grid stabilization 2. Decrease transmission losses 3. Diminish congestion 4. Increase system reliability 5. Defer transmission investment 6. Optimize size of new renewable-related transmission 7. Provide system capacity and resource adequacy 8. Integrate renewable energy (smoothing) 9. Shift wind generation output 10. Frequency regulation 11. Spin / non-spin replacement reserves 12. Ramp management 13. Energy price arbitrage. \r\n\r\nMost of the operations either shift other generation resources to meet peak load and other electricity system needs with stored electricity, or resolve grid stability and capacity concerns that result from the interconnection of variable energy resources. SCE will also demonstrate the ability of lithium-ion battery storage to provide nearly instantaneous maximum capacity for supply-side ramp rate control to minimize the need for fossil fuel-powered back-up generation.","developer":"Southern California Edison","electronics\_provider":"ABB (providing to LG Chem Ltd.)","energy\_management\_software\_provider":null,"funding\_amount\_1":24978264.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":8,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/8/Utility4-SCE\_Tehachapi\_Photo2.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/8/thumb\_Utility4-SCE\_Tehachapi\_Photo2.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/8/partner\_Utility4-SCE\_Tehachapi\_Photo2.jpg"}},"integrator\_company":"ABB (providing to LG Chem Ltd.)","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":35.036143,"longitude":-118.280659,"master\_project\_id":null,"name":"Tehachapi Wind Energy Storage Project - Southern California Edison","om\_contractor":"","organization":null,"owner\_1":"Southern California Edison","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.smartgrid.gov/project/southern\_california\_edison\_company\_tehachapi\_wind\_energy\_storage\_project.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"National Energy Technology Laboratory","research\_institution\_link":"http://www.netl.doe.gov/","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Transmission Congestion Relief","service\_use\_case\_4":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":8000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-12T22:45:40Z","updated\_at\_by\_admin":"2016-05-12T22:45:40Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"LG Chem Ltd.","zip":""}},{"project":{"announcement\_on":"2022-01-23","approval\_status":2,"city":"Modesto","commissioning\_on":null,"companion":"Grid","construction\_on":null,"contact\_city":"Hayward","contact\_country":"United States","contact\_email":"Kimberly.Nuhfer@netl.doe.gov; jonathan.hall@primuspower.com","contact\_info\_visible":false,"contact\_name":"Kim Nuhfer; Jonathan Hall","contact\_phone":"(510)-342-7600","contact\_state":"California","contact\_street\_address":"3697 Trust Way","contact\_zip":"94505","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-02-12T01:53:14Z","created\_by\_id":null,"debt\_investor":"","decommissioning\_on":null,"desc":"\*\*\* Project was never built and will not be built -- Updated 5/2/16\r\n\r\nPrimus Power is developing and deploying a 28 MW / 112 MWh EnergyFarm energy storage system in the Modesto Irrigation District in California’s Central Valley. The system would replace the potential future installation of a $78 M / 50 MW fossil fuel plant and is intended to provide flexible capacity for the region and compensate for the variable nature of wind and solar energy. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":14000000.0,"funding\_amount\_2":1000000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"State/Provincial/Regional Grant","funding\_source\_3":"","funding\_source\_details\_1":"US Department of Energy, Office of Electricity - American Recovery and Reinvestment Act of 2009 (ARRA)","funding\_source\_details\_2":"California Energy Commission","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":9,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/9/4MW\_layout\_-\_front.png","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/9/thumb\_4MW\_layout\_-\_front.png"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/9/partner\_4MW\_layout\_-\_front.png"}},"integrator\_company":"Bosch","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"BANC","latitude":37.6390972,"longitude":-120.9968782,"master\_project\_id":null,"name":"Modesto Irrigation District - Primus Power","om\_contractor":"","organization":"","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://energy.gov/sites/prod/files/Primus.pdf","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"Yes","research\_desc":"","research\_institution":"Sandia National Laboratories","research\_institution\_link":"http://www.sandia.gov/ess/index.html","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":28000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Offline/Under Repair","street\_address":"","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-10-12T22:33:15Z","updated\_at\_by\_admin":"2016-10-12T22:33:15Z","updated\_by":null,"updated\_by\_email":null,"utility":"Modesto Irrigation District","utility\_type":"Public Owned","vendor\_company":"Primus Power","zip":""}},{"project":{"announcement\_on":"2022-11-01","approval\_status":1,"city":"Goldsmith","commissioning\_on":"2022-01-01","companion":"Wind","construction\_on":"2022-10-01","contact\_city":"Charlotte","contact\_country":"United States","contact\_email":"cchristensen@strategen.com","contact\_info\_visible":false,"contact\_name":"Cedric Christensen","contact\_phone":"","contact\_state":"North Carolina","contact\_street\_address":"550 S. Tryon St. ","contact\_zip":"28202","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":43610000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-02-12T01:53:15Z","created\_by\_id":null,"debt\_investor":"","decommissioning\_on":null,"desc":"Notrees was updated with Samsung lithium Ion batteries in 2016\r\n\r\nDuke Energy has deployed a wind energy storage demonstration system at the 153 MW Notrees Wind power project in western Texas. The project demonstrates how energy storage and power storage technologies can help wind power systems address intermittency issues by building a 36 megawatt (MW) turnkey energy storage and power management system capable of optimizing the delivery of energy, in addition to providing regulation service in the ERCOT market. The project is supported by a U.S. DOE Office of Electricity ARRA grant.","developer":"Duke Energy","electronics\_provider":"Younicos","energy\_management\_software\_provider":"","funding\_amount\_1":21806219.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"US Department of Energy, Office of Electricity - ARRA Grant","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":11,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/11/notrees.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/11/thumb\_notrees.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/11/partner\_notrees.jpg"}},"integrator\_company":"Younicos","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":31.9819386,"longitude":-102.6147715,"master\_project\_id":null,"name":"Notrees Battery Storage Project - Duke Energy","om\_contractor":"Younicos","organization":"","owner\_1":"Duke Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.duke-energy.com/commercial-renewables/notrees-windpower.asp","primary\_reference1":"https://www.greentechmedia.com/articles/read/the-risks-of-novel-batteries-wearing-out-before-their-time","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":36000,"size\_kwh":0.666666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":40.0,"state":"Texas","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-25T23:07:32Z","updated\_at\_by\_admin":"2017-02-27T19:44:53Z","updated\_by":null,"updated\_by\_email":null,"utility":"Duke Energy","utility\_type":"Investor Owned","vendor\_company":"Xtreme Power","zip":"79759"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Dearborn","commissioning\_on":"2022-06-01","companion":"Grid","construction\_on":null,"contact\_city":"Dearborn","contact\_country":"United States","contact\_email":"gene.hunt@younicos.com","contact\_info\_visible":false,"contact\_name":"Gene Hunt","contact\_phone":"313-322-3000","contact\_state":"Michigan","contact\_street\_address":"3001 Miller Road","contact\_zip":"48120","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":5800000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-02-12T01:53:15Z","created\_by\_id":null,"debt\_investor":"","decommissioning\_on":"2022-01-01","desc":"\*\*\* This project has been De-Commissioned\r\n\r\nYounicos integrated their Dynamic Power Resource with a solar power-run Ford car manufacturing plant in Dearborn Michigan. The Storage System helps to even out the intermittent solar resource.","developer":"","electronics\_provider":"Eaton","energy\_management\_software\_provider":null,"funding\_amount\_1":3000000.0,"funding\_amount\_2":2000000.0,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Grant","funding\_source\_2":"State/Provincial/Regional Grant","funding\_source\_3":"","funding\_source\_details\_1":"Detroit Edison Energy - Rebate","funding\_source\_details\_2":"Michigan Public Service Commission - Grant","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":13,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/13/Dearborn\_Ford\_plant\_picture.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/13/thumb\_Dearborn\_Ford\_plant\_picture.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/13/partner\_Dearborn\_Ford\_plant\_picture.jpg"}},"integrator\_company":"Younicos","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"MISO","latitude":42.3083377,"longitude":-83.1563218,"master\_project\_id":null,"name":" Ford Manufacturing Assembly Plant - Xtreme Power","om\_contractor":"Younicos","organization":null,"owner\_1":"Ford Motor Company","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.pv-tech.org/news/project\_focus\_detroit\_edison\_xtreme\_power\_install\_pv\_system\_at\_fords\_michig","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":750,"size\_kwh":2.66666666666667,"size\_kwh\_hours":2,"size\_kwh\_minutes":40.0,"state":"Michigan","status":"De-Commissioned","street\_address":"3001 Miller Road","systems\_integration":"","technology\_classification":"","technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-18T20:27:08Z","updated\_at\_by\_admin":"2016-05-18T20:27:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"Detroit Edison Energy","utility\_type":"Investor Owned","vendor\_company":"","zip":"48120"}},{"project":{"announcement\_on":"2022-08-27","approval\_status":1,"city":"Redding","commissioning\_on":"2022-01-01","companion":"Hydro and off peak energy purchases","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"Redding Electric Utilities - Peak Capacity, Demand Response, HVAC Replacement Program","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":2170000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-02-12T01:53:15Z","created\_by\_id":null,"debt\_investor":"","decommissioning\_on":null,"desc":"Ice Energy installed 1 MW of Ice Bear Thermal Energy Storage Assets as part of Redding Electric Utilities - Peak Capacity, Demand Response, HVAC Replacement Program. Redding Electric Utility used this procurement of thermal storage to avoid the high cost summer peak energy by shifting air conditioning load permanently to the night time hours when energy is more abundant and lower cost. The turnkey system costs $2170/kW.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":16,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/16/REU.gif","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/16/thumb\_REU.gif"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/16/partner\_REU.gif"}},"integrator\_company":"Ice Energy","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"BANC","latitude":40.5865396,"longitude":-122.3916754,"master\_project\_id":null,"name":"Redding Electric Utilities (Phase 1) - Ice Energy","om\_contractor":"","organization":"Ice Energy","owner\_1":"Redding Electric Utility","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":">98% reliability on peak (6hrs)","primary\_reference":"http://www.redding.com/story/opinion/contributors/local-voices/2009/08/27/reu\_on\_ice/96762048/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Transmission Congestion Relief","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-18T04:57:31Z","updated\_at\_by\_admin":"2016-05-24T19:09:44Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Redding Electric Utility","utility\_type":"","vendor\_company":"Ice Energy","zip":""}},{"project":{"announcement\_on":"2022-05-16","approval\_status":1,"city":"Anaheim","commissioning\_on":null,"companion":"Grid","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3232","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-02-12T01:53:15Z","created\_by\_id":null,"debt\_investor":"","decommissioning\_on":null,"desc":"Ice Energy's Ice Bear systems provides energy time shifting services to the Anaheim Public Utility. Multiple systems are installed at various buildings, including the local fire station.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":17,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/17/Ice\_energy\_anaheim.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/17/thumb\_Ice\_energy\_anaheim.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/17/partner\_Ice\_energy\_anaheim.jpg"}},"integrator\_company":"Ice Energy","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":33.8352932,"longitude":-117.9145036,"master\_project\_id":null,"name":" Anaheim Public Utility Ice Bear Systems","om\_contractor":"","organization":"Ice Energy","owner\_1":"Various Owners","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The publisher of this project declined to state any performance metrics.","primary\_reference":"http://www.prnewswire.com/news-releases/ice-energy-and-anaheim-public-utilities-target-californias-largest-peak-demand-challenge-powering-air-conditioners-56108642.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200,"size\_kwh":4.75,"size\_kwh\_hours":4,"size\_kwh\_minutes":45.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"Thermal Storage","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-04T02:51:36Z","updated\_at\_by\_admin":"2016-05-02T16:48:35Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Anaheim Public Utility","utility\_type":"Public Owned","vendor\_company":"Ice Energy","zip":""}},{"project":{"announcement\_on":"2022-09-21","approval\_status":1,"city":"Toronto","commissioning\_on":"2022-09-21","companion":"Grid","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":true,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3232","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2012-02-12T01:53:16Z","created\_by\_id":null,"debt\_investor":"","decommissioning\_on":null,"desc":"Ice Energy's Ice Bear systems provides energy time shifting services to various commercial locaitons near Toronto, Canada. The system reduces peak air conditioning load by up to 95%, and is a demonstration project to possibly be implemented across Toronto.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Ontario Power Authority Conservation Fund Program - Grant","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":18,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/18/Ice\_Bear\_Toronto\_Zoo.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/18/thumb\_Ice\_Bear\_Toronto\_Zoo.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/18/partner\_Ice\_Bear\_Toronto\_Zoo.jpg"}},"integrator\_company":"Ice Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":43.8249775,"longitude":-79.1853879,"master\_project\_id":null,"name":"Toronto Zoo Ice Energy","om\_contractor":"","organization":"Ice Energy","owner\_1":"Toronto Zoo","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.torontozoo.com/pdfs/Ice%20Bear%20Press%20Release.pdf","primary\_reference1":"http://www.torontohydro.com/sites/electricsystem/electricityconservation/businessconservation/Pages/IceBearEnergyStoragePilot.aspx","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":15,"size\_kwh":4.66666666666667,"size\_kwh\_hours":4,"size\_kwh\_minutes":40.0,"state":"Ontario","status":"Operational","street\_address":"361A Old Finch Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-10T21:24:52Z","updated\_at\_by\_admin":"2016-04-30T00:36:26Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Toronto Hydro","utility\_type":"State/Municipal Owned","vendor\_company":"Ice Energy","zip":""}},{"project":{"announcement\_on":"2022-04-10","approval\_status":1,"city":"Kodiak Island","commissioning\_on":"2022-11-01","companion":"Wind","construction\_on":null,"contact\_city":"Kodiak","contact\_country":"United States","contact\_email":"jrichcreek@kodiak.coop","contact\_info\_visible":false,"contact\_name":"Jennifer Richcreek, Environmental Coordinator, Kodiak Electric Association","contact\_phone":"(907) 486-7704","contact\_state":"Alaska","contact\_street\_address":"515 E Marine Way ","contact\_zip":"99615","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-04-11T23:28:55Z","created\_by\_id":5,"debt\_investor":"","decommissioning\_on":null,"desc":"Younicos will install a 3 MW Advanced Lead Acid energy storage system on the Kodiak Island grid to respond to grid voltage and frequency fluctuations from local wind generation. The energy storage will act as a \"bridge\" between the wind and hydro resources, allowing KEA (http://www.kodiakelectric.com) to increase reliable wind generation from 4.5 MW to 9 MW. The Control System's architecture is designed such that the utility can add the service known as Ramp Control later in time if need be. ","developer":"Kodiak Electric Association","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":22,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/22/01\_Kodiak\_Slider\_2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/22/thumb\_01\_Kodiak\_Slider\_2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/22/partner\_01\_Kodiak\_Slider\_2.jpg"}},"integrator\_company":"Younicos","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":57.4912463,"longitude":-153.495022,"master\_project\_id":null,"name":" Pillar Mountain Wind Project - Xtreme Power","om\_contractor":"","organization":"","owner\_1":"Kodiak Electric Association","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.younicos.com/case-studies/kodiak-island/","primary\_reference1":"https://www.younicos.com/wp-content/uploads/2016/07/Younicos\_Reference\_Project\_Kodiak\_Island\_US.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":3000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Alaska","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T17:46:45Z","updated\_at\_by\_admin":"2016-04-22T21:31:08Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Kodiak Electric Association","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Xtreme Power ","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Copiapo","commissioning\_on":"2022-12-01","companion":"Grid","construction\_on":null,"contact\_city":"Arlington","contact\_country":"United States","contact\_email":"praveen.kathpal@aes.com","contact\_info\_visible":false,"contact\_name":"Praveen Kathpal","contact\_phone":"(703) 682-6690","contact\_state":"Virginia","contact\_street\_address":"4300 Wilson Blvd. 11th floor","contact\_zip":"22203","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Chile","created\_at":"2012-04-12T23:04:02Z","created\_by\_id":5,"debt\_investor":"","decommissioning\_on":null,"desc":"The Los Andes project provides critical contingency services to maintain the stability of the electric grid in Northern Chile, an important mining area. The project continuously monitors the condition of the power system and if a significant frequency deviation occurs, such as the loss of a generator or transmission line, the Los Andes system provides up to 12 MW of power nearly instantaneously. This output can be maintained for 20 minutes at full power, allowing the system operator to resolve the event or bring other standby units online. ","developer":"AES Energy Storage","electronics\_provider":"Parker SSD","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":24,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/24/Los\_Andes.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/24/thumb\_Los\_Andes.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/24/partner\_Los\_Andes.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CDEC-SING","latitude":-27.366359,"longitude":-70.332237,"master\_project\_id":null,"name":"Los Andes Substation Battery Energy Storage System - AES Gener","om\_contractor":"","organization":"","owner\_1":"AES Gener","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.aesenergystorage.com/deployments/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":12000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Atacama","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-26T23:37:45Z","updated\_at\_by\_admin":"2016-05-02T17:23:24Z","updated\_by":null,"updated\_by\_email":null,"utility":"Centro de Dispacho Economico de Carga del Sistema Interconectado del Norte Grande de Chile (CDEC-SING)","utility\_type":"","vendor\_company":"A123 Systems","zip":""}},{"project":{"announcement\_on":"2022-08-13","approval\_status":1,"city":"Everett","commissioning\_on":"2022-11-01","companion":"Solar PV","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"United States","contact\_email":"Kimberly.Nuhfer@netl.doe.gov; dalderton@vionxenergy.com","contact\_info\_visible":false,"contact\_name":"Kim Nuhfer; Doug Alderton","contact\_phone":"304-285-6544; 603-391-2817","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-04-17T00:03:56Z","created\_by\_id":5,"debt\_investor":"","decommissioning\_on":null,"desc":"This project demonstrates competitively-priced, grid scale, long-duration advanced flow batteries for utility grid applications. The project incorporates engineering of fleet control, manufacturing and installation of two 500 kW / 6 hour energy storage systems in Massachusetts to lower peak energy demand and reduce the costs of power interruptions. \r\n\r\nOne ESS will be installed next to a 605 kW photovoltaic (PV) array in Everett, MA. A second ESS will be installed next to a 600 kW wind turbine located on a customer site in Worcester, MA.","developer":"National Grid","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":6062552.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":26,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/26/vionx-energy-logo-2.png","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/26/thumb\_vionx-energy-logo-2.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/26/partner\_vionx-energy-logo-2.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.40843,"longitude":-71.0536625,"master\_project\_id":null,"name":"Distributed Energy Storage Systems Demonstration (Everett, MA) - National Grid ","om\_contractor":"","organization":"National Energy Technology Laboratory; Vionx Energy (formerly Premium Power)","owner\_1":"National Grid","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.smartgrid.gov/project/vionx\_energy\_distributed\_energy\_storage\_system.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"This project will demonstrate a multi-hour, zinc bromide battery-based energy storage system (ESS) for load shifting, peak shaving, renewable system integration, and voltage support.","research\_institution":"National Energy Technology Laboratory","research\_institution\_link":"http://www.netl.doe.gov/","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Transmission Support","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-01T01:50:10Z","updated\_at\_by\_admin":"2016-05-03T21:37:37Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"National Grid","utility\_type":"Investor Owned","vendor\_company":"Vionx Energy (formerly Premium Power)","zip":""}},{"project":{"announcement\_on":"2022-03-01","approval\_status":2,"city":"Painesville ","commissioning\_on":null,"companion":"Coal-Fired Power Plant","construction\_on":null,"contact\_city":"Morgantown","contact\_country":"United States","contact\_email":"Kimberly.Nuhfer@netl.doe.gov; jmchugh@painesville.com","contact\_info\_visible":false,"contact\_name":"Kimberly Nuhfer; Jeff McHugh","contact\_phone":"304-285-4828","contact\_state":"West Virginia","contact\_street\_address":"3610 Collins Ferry Road","contact\_zip":"26507-0880","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":9462623.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-04-17T21:08:06Z","created\_by\_id":5,"debt\_investor":"","decommissioning\_on":"2022-01-31","desc":"\*\*\* This project was never commissioned or operated. The R&D / scale-up was completed, but the 1 MW battery was never produced or installed due to funding constraints. -- Updated 5/1/16\r\n\r\n\*\*\* The project was closed as of January 31, 2022 without a working prototype/model finalized or able to be tested at the Plant in Painesville. Ashlawn Energy is pursuing other options and financing at last communication.\r\n\r\nThis system was designed to demonstrate a 1.08 MW vanadium redox battery (VRB) storage system at the 32 MW municipal coal fired power plant in Painesville. The system was to provide operating data and experience to help the plant maintain its daily power output requirement more efficiently while reducing its carbon footprint. The project was supported by a U.S. DOE Office of Energy ARRA grant. ","developer":"Painesville Municipal Power","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":4243570.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"US Department of Energy, Office of Electricity - ARRA Grant","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":27,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/27/27\_ashlawn\_batterybuilding.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/27/thumb\_27\_ashlawn\_batterybuilding.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/27/partner\_27\_ashlawn\_batterybuilding.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":41.7264075,"longitude":-81.2540254,"master\_project\_id":null,"name":"City of Painesville Municipal Power Vanadium Redox Battery Demonstration","om\_contractor":"","organization":null,"owner\_1":"Painesville Municipal Power","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.smartgrid.gov/document/painesville\_vanadium\_redox\_flow\_battery\_project\_american\_recovery\_and\_reinvestment\_act\_arra","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"This project is designed to demonstrate how a 1.08 MW vanadium redox battery (VRB) storage system installed at a 32 MW municipal coal fired power plant can help run the plant more efficiently.","research\_institution":"National Energy Technology Laboratory","research\_institution\_link":"http://www.netl.doe.gov/","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Transmission Congestion Relief","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1080,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Ohio","status":"De-Commissioned","street\_address":"325 Richmond St.","systems\_integration":null,"technology\_classification":null,"technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-10T21:16:23Z","updated\_at\_by\_admin":"2016-05-10T21:16:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"Painesville Municipal Power","utility\_type":"Public Owned","vendor\_company":"Ashlawn Energy LLC","zip":"44077"}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Glendale","commissioning\_on":"2022-01-01","companion":"Off peak energy purchases","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3236","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":2170000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-04-18T19:48:27Z","created\_by\_id":5,"debt\_investor":"","decommissioning\_on":null,"desc":"Glendale Water and Power’s (GWP) Ice Bear project installed Ice Thermal Energy storage units at 28 Glendale city buildings and 58 local small, medium sized, and large commercial businesses. The project was supported by local trade companies and created approximately 40 jobs during the 1 year installation process. A total of 180 Ice Bear units have been installed in Glendale since the program’s inception. The turnkey system costs $2170/kW.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":28,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Ice Energy","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":34.1425078,"longitude":-118.255075,"master\_project\_id":null,"name":"Glendale Water and Power - Ice Energy","om\_contractor":"","organization":"Ice Energy","owner\_1":"Los Angeles Department of Water and Power","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":">98% realiability on peak (6 hrs)","primary\_reference":"http://www.energy.ca.gov/2015publications/CEC-500-2015-090/CEC-500-2015-090.pdf","primary\_reference1":"http://articles.glendalenewspress.com/2012-05-02/news/tn-gnp-0502-ice-energy-melts-for-glendale\_1\_air-conditioning-glendale-water-power-steiger","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Transmission Congestion Relief","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1500,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-01-19T01:25:55Z","updated\_at\_by\_admin":"2016-05-03T21:52:14Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Los Angeles Department of Water and Power","utility\_type":"Public Owned","vendor\_company":"Ice Energy","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Rosemead ","commissioning\_on":"2022-01-01","companion":"Time of use off peak rates","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-04-18T20:58:33Z","created\_by\_id":5,"debt\_investor":"","decommissioning\_on":null,"desc":"Southern California Edison partnered with Ice Energy to create a rebate program of $1800 / kW for businesses to install the Ice Bear system at their commercial locations. The systems reduce peak HVAC energy demand significantly, meaning lower electricity consumption overall.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":29,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/29/SCE-Color-High-Res-Logo.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/29/thumb\_SCE-Color-High-Res-Logo.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/29/partner\_SCE-Color-High-Res-Logo.jpg"}},"integrator\_company":"Ice Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.0805651,"longitude":-118.072846,"master\_project\_id":null,"name":"Southern California Edison - HVAC Optimization Program","om\_contractor":"","organization":"Ice Energy","owner\_1":"Various Owners","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":">98% realiability on peak (6 hrs)","primary\_reference":"http://www.ice-energy.com/ice-energy-provides-distributed-thermal-energy-storage-grid-southern-california-edison/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":750,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-23T16:05:47Z","updated\_at\_by\_admin":"2016-05-03T22:04:45Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Ice Energy","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Albuquerque","commissioning\_on":"2022-08-01","companion":"500 kW PV","construction\_on":null,"contact\_city":"Albuquerque","contact\_country":"United States","contact\_email":"steve.willard@pnmresources.com","contact\_info\_visible":false,"contact\_name":"Steve Willard (PI)","contact\_phone":"505-241-2566","contact\_state":"New Mexico","contact\_street\_address":"414 Silver Avenue SW","contact\_zip":"87102-3289","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":6113433.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-04-19T18:08:00Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Public Service Company of New Mexico (PNM) demonstration project installed an energy storage system composed of two elements: a 0.5MW Smoothing Battery utilizing Ultra Batteries and a 0.25MW/0.99MWhr Peak Shifting Battery utilizing Advanced Lead Acid Batteries, both manufactured by Ecoult/East Penn Manufacturing. These two systems combined with a single 0.75MW Power Conditioning System, are co-located with a separately installed 500kW solar PV plant, at a utility-owned site, to create a firm, dispatchable, renewable generation resource. \r\n\r\nThis hybrid resource provides simultaneous voltage smoothing and peak shifting through advanced control algorithms and switches between two configurations, end-of-feeder and beginning-of- feeder. The project has successfully demonstrated a variety of applications, including PV firming, peak shaving, energy arbitrage, optimized energy shifting selecting from the above application as well as simultaneously smoothing PV output. It has gathered close to 1 TB of 1 second interval data over 2 years from a variety of field points. Its control algorithms are securely importing real time market, system and feeder data and optimize operation of the BESS on a real time automated basis based on prioritized listing of applications. The project has also developed sophisticated dynamic modeling tools which are used to calibrate and optimize the battery system control algorithms. These models have furthered the understanding of feeders with storage and distributed generation on an industry wide basis and over 18 technical publications have stemmed from this project. The site is located in southeast Albuquerque. Results and real time data feeds are available at www.pnm.com/solarstorage\r\n","developer":"","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":2305931.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"US Department of Energy, Office of Electricity - ARRA Grant","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":31,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/31/PNM\_Prosperity.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/31/thumb\_PNM\_Prosperity.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/31/partner\_PNM\_Prosperity.jpg"}},"integrator\_company":"S&C Electric Company","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.986823,"longitude":-106.6132321,"master\_project\_id":null,"name":"PNM Prosperity Energy Storage Project","om\_contractor":"","organization":"Public Service Company of New Mexico","owner\_1":"Public Service Company of New Mexico","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"https://www.smartgrid.gov/sites/default/files/doc/files/FTR%20FINAL%20PNM%2027May14.pdf","primary\_reference":"https://www.smartgrid.gov/project/public\_service\_company\_new\_mexico\_pv\_plus\_battery\_simultaneous\_voltage\_smoothing\_and\_peak.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"Grid modeling, PV forecasting, Storage Algorithm development and calibration, storage economic evaluation","research\_institution":"University of New Mexico ","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"New Mexico","status":"Operational","street\_address":"5700 W University Blvd SE ","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-31T21:29:03Z","updated\_at\_by\_admin":"2016-06-02T00:06:44Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Public Service Company of New Mexico","utility\_type":"Investor Owned","vendor\_company":"Ecoult, East Penn","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Mejillones","commissioning\_on":"2022-05-01","companion":"544 MW Thermal Power Plant","construction\_on":null,"contact\_city":"Arlington","contact\_country":"United States","contact\_email":"praveen.kathpal@aes.com","contact\_info\_visible":false,"contact\_name":"Praveen Kathpal","contact\_phone":"(703) 682-6690","contact\_state":"Virginia","contact\_street\_address":"4300 Wilson Blvd. 11th floor","contact\_zip":"22203","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Chile","created\_at":"2012-04-19T23:19:26Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This project will utilize 20 MW of A123 lithium-ion batteries to supply a flexible and scalable emissions-free reserve capacity installation for AES Gener. The advanced energy storage installation provides critical contingency services to maintain the stability of the electric grid in Northern Chile, an important mining area. It continuously monitors the condition of the power system and if a significant frequency deviation occurs—for example, the loss of a generator or transmission line—the energy storage system is capable of providing up to 20 MW of power nearly instantaneously. This output is designed to be maintained for 15 minutes at full power, allowing the system operator to resolve the event or bring other standby units online.","developer":"AES Energy Storage","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":34,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/34/Angamos\_aes.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/34/thumb\_Angamos\_aes.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/34/partner\_Angamos\_aes.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CDEC-SING","latitude":-23.65,"longitude":-70.4,"master\_project\_id":null,"name":"AES Angamos Storage Array","om\_contractor":"","organization":"","owner\_1":"AES Gener","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.aesenergystorage.com/deployments/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":20000,"size\_kwh":0.333333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":20.0,"state":"Antofagasta","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-26T05:45:01Z","updated\_at\_by\_admin":"2016-05-03T23:24:07Z","updated\_by":null,"updated\_by\_email":null,"utility":"AES Gener","utility\_type":"Investor Owned","vendor\_company":"A123","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Luverne","commissioning\_on":"2022-10-01","companion":"11 MW Wind Farm","construction\_on":null,"contact\_city":"Denver","contact\_country":"United States","contact\_email":"frank.novachek@xcelenergy.com","contact\_info\_visible":false,"contact\_name":"Frank Novachek","contact\_phone":"P: 303.294.2410 C: 303.517.6078 ","contact\_state":"Colorado","contact\_street\_address":"1800 Larimer Street","contact\_zip":"80202","contractor\_1":"S&C Electric Company","contractor\_2":"","contractor\_3":"","cost\_CAPEX":4600000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-05-14T19:56:05Z","created\_by\_id":5,"debt\_investor":"","decommissioning\_on":null,"desc":"In October 2008, Xcel Energy began testing a 1 MW battery-storage technology to demonstrate its ability to store wind energy and move it to the electricity grid when needed. Xcel Energy purchased the battery from NGK Insulators Ltd. The sodium-sulfur battery is commercially available and versions of this technology are in use elsewhere in the U.S. and other parts of the world, but this is the first U.S. application of the battery as a direct wind energy storage device. The project is being conducted in Luverne, Minnesota, about 30 miles east of Sioux Falls, South Dakota.\r\n\r\nThe battery installation is connected to a nearby 11 MW wind farm owned by Minwind Energy, LLC. The total funding for the project was $4.6 million. The project received a $1.0 million grant from the Xcel Energy's Renewable Development Fund. The remaining amount was funded through utility rates.","developer":"","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":1000000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Grant","funding\_source\_2":"Private/Third Party","funding\_source\_3":"","funding\_source\_details\_1":"Xcel Energy - Xcel Renewable Development Fund","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":39,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/39/Xcel\_Wind-to-Battery\_pic.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/39/thumb\_Xcel\_Wind-to-Battery\_pic.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/39/partner\_Xcel\_Wind-to-Battery\_pic.JPG"}},"integrator\_company":"S&C Electric Company","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"MISO","latitude":43.6541362,"longitude":-96.2128071,"master\_project\_id":null,"name":"XCEL NGK MinnWind Wind-to-Battery Project","om\_contractor":"S&C Electric Company","organization":"Xcel Energy","owner\_1":"Xcel Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The following is a list of the general conclusions and lessons learned related to the DESS as a whole, based on the tests conducted and the related testing conditions: \u0001 The overall efficiency of the DESS, accounting for the auxiliary energy requirements, displayed considerable variation as a function of mode of operation, ranging from 67.6% to 78.9%. \u0001 The efficiency of the DESS, not accounting for the auxiliary energy requirements, displayed less variation as a function of mode of operation, ranging from 85.1% to 91.6%. \u0001 The DESS never exceeded more than one discharge cycle in any 24-hour period for any mode of operation. \u0001 The DESS mileage varied significantly depending on the mode of operation. Based on the mileage metric, the Frequency Regulation mode of operation was the most aggressive mode while the Economic Dispatch mode was the least aggressive.","primary\_reference":"https://www.xcelenergy.com/staticfiles/xe/Corporate/Renewable%20Energy%20Grants/Milestone%206%20Final%20Report%20PUBLIC.pdf","primary\_reference1":"http://www.startribune.com/minnesota-wind-farm-battery-going-back-online/188416921/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"University of Minnesota and NREL","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Ramping ","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1000,"size\_kwh":7.2,"size\_kwh\_hours":7,"size\_kwh\_minutes":12.0,"state":"Minnesota","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-18T04:26:02Z","updated\_at\_by\_admin":"2016-09-20T20:21:26Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Xcel Energy","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Salem","commissioning\_on":"2022-03-01","companion":"100 kW solar and dispatchable diesel generators","construction\_on":"2022-05-21","contact\_city":"Portland ","contact\_country":"United States","contact\_email":"mark.osborn@pgn.com ","contact\_info\_visible":true,"contact\_name":"Mark Osborn ","contact\_phone":"503-464-8347","contact\_state":"Oregon ","contact\_street\_address":"121 SW Salmon, 3WTC0407 ","contact\_zip":"97204 ","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":25000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-05-14T21:58:11Z","created\_by\_id":5,"debt\_investor":"","decommissioning\_on":null,"desc":"PGE’s Salem Smart Power Center (SSPC) is an Energy Storage Facility in Salem, Oregon. The project has a 5 MW, 1.25 MWh storage resource designed to increase distribution system reliability, aid renewable resource integration and decrease peak-price risk. The ESF is a key aspect of PGE’s Salem Smart Power project associated with the Pacific Northwest Smart Grid Demonstration Project test phase which began September, 2012. \r\n\r\nPGE expects demand response and utility-scale storage system use to contribute to decreases in the cost of energy: first, by shifting demand from one market-time-period to another; and finally as a renewable resource optimization technology, where the MW-scale system may be used to follow an intermittent renewable resource, such as solar or wind. (CapEx shown below covers the entire Salem project not the energy storage facility alone)","developer":"","electronics\_provider":"Eaton Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":10300000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"Federal/National","funding\_source\_3":"","funding\_source\_details\_1":"US DOE - American Recovery and Reinvestment Act (ARRA)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":40,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/40/BMI.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/40/thumb\_BMI.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/40/partner\_BMI.jpg"}},"integrator\_company":"Eaton, PGE, and GE","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":44.9428975,"longitude":-123.0350963,"master\_project\_id":null,"name":"Battelle Memorial Institute 5 MW / 1.25 MWh Pacific Northwest Smart Grid Demonstration ","om\_contractor":"","organization":"","owner\_1":"Portland General Electric","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.smartgrid.gov/project/battelle\_memorial\_institute\_pacific\_northwest\_division\_smart\_grid\_demonstration\_project","primary\_reference1":"","projected\_lifetime":"12.5","rdd\_status":"Yes","research\_desc":"","research\_institution":"PNNL, Oregon State University, Portland State University, University of Colorado ","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":5000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Oregon","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-22T22:05:33Z","updated\_at\_by\_admin":"2016-05-03T23:33:37Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Portland General Electric","utility\_type":"Investor Owned","vendor\_company":"EnerDel","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Cranberry Township","commissioning\_on":"2022-08-01","companion":"","construction\_on":"2022-04-01","contact\_city":"Cranberry Twp","contact\_country":"United States","contact\_email":"cgoetz@saintkilian.org","contact\_info\_visible":false,"contact\_name":"Mr. Charles Goetz","contact\_phone":"724-625-1665","contact\_state":"PA","contact\_street\_address":"7076 Franklin Road","contact\_zip":"16066","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-05-23T21:17:36Z","created\_by\_id":9,"debt\_investor":"","decommissioning\_on":null,"desc":"Ice Storage is charged at night using low cost electricity with a smaller - right sized air cooled chiller. The stored cooling can then be discharged when cooling loads are high, electric demand is high, or in response to a demand response event. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":42,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/42/StKilian7.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/42/thumb\_StKilian7.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/42/partner\_StKilian7.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.683741,"longitude":-80.072446,"master\_project\_id":null,"name":"St. Kilian Parish and School","om\_contractor":"","organization":"St. Killian Parish","owner\_1":"Catholic Diocese of Pittsburgh","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.calmac.com/benefits/","primary\_reference1":"","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":100,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Pennsylvania","status":"Operational","street\_address":"7076 Franklin Road","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-17T22:00:10Z","updated\_at\_by\_admin":"2016-05-04T00:01:55Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Penn Power","utility\_type":"Investor Owned","vendor\_company":"CALMAC","zip":"16066"}},{"project":{"announcement\_on":"2022-03-31","approval\_status":2,"city":"Newcastle","commissioning\_on":"2022-02-01","companion":"","construction\_on":"2022-11-30","contact\_city":"","contact\_country":"Australia","contact\_email":"news@ausgrid.com.au","contact\_info\_visible":true,"contact\_name":"Ausgrid","contact\_phone":"1300 922 746","contact\_state":"New South Wales","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2012-06-01T03:05:57Z","created\_by\_id":21,"debt\_investor":"","decommissioning\_on":"2022-08-01","desc":"RedFlow has supplied 40 energy storage systems for the Smart Grid, Smart City (SGSC) Project, that have been grid-feeding since early 2012. Each system contains a RedFlow 5 kW / 10 kWh zinc-bromide battery, resulting in a total 200 kW and 400 kWh of storage. The Smart Grid, Smart City program is an Australian Federal Government Initiative. This project is testing smart grid technology in an urban setting. Smart Grid, Smart City creates a testing ground for new energy supply technologies. At least 30,000 households will participate in the project over three years. The demonstration project gathers information about the benefits and costs of different smart grid technologies in an Australian setting. \r\n\r\nMore information about the project results can be found at http://www.industry.gov.au/ENERGY/PROGRAMMES/SMARTGRIDSMARTCITY/Pages/default.aspx","developer":"Ausgrid","electronics\_provider":"SMA America","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":57,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/57/\_MTC2526\_tn.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/57/thumb\_\_MTC2526\_tn.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/57/partner\_\_MTC2526\_tn.jpg"}},"integrator\_company":"RedFlow","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-32.9206957,"longitude":151.6754787,"master\_project\_id":null,"name":"Ausgrid Smart Grid Smart City (SGSC) Project - RedFlow","om\_contractor":"","organization":null,"owner\_1":"Ausgrid","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://redflow.com/wp-content/uploads/2012/10/Smart-Grid-Smart-City-R510-Case-Study-No-Addresses.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"Our vision is to enable growth and productivity for globally competitive industries. To help realise this vision, the Department has four key objectives: supporting science and commercialisation, growing business investment and improving business capability, streamlining regulation and building a high performance organisation.","research\_institution":"Australian Government - Department of Industry, Innovation and Science","research\_institution\_link":"http://www.industry.gov.au/Energy/Programmes/SmartGridSmartCity/Pages/AdditionalInformation.aspx","service\_use\_case\_1":"Grid-Connected Residential (Reliability)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"New South Wales","status":"De-Commissioned","street\_address":"Elermore Vale / South Wallsend","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-04T17:20:05Z","updated\_at\_by\_admin":"2016-05-04T17:20:05Z","updated\_by":null,"updated\_by\_email":null,"utility":"Ausgrid","utility\_type":"State/Municipal Owned","vendor\_company":"RedFlow","zip":"2287"}},{"project":{"announcement\_on":"2022-03-31","approval\_status":2,"city":"Scone","commissioning\_on":"2022-04-01","companion":"","construction\_on":"2022-02-01","contact\_city":"","contact\_country":"Australia","contact\_email":"news@ausgrid.com.au","contact\_info\_visible":true,"contact\_name":"Ausgrid","contact\_phone":"1300 922 746","contact\_state":"New South Wales","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2012-06-01T03:17:50Z","created\_by\_id":21,"debt\_investor":"","decommissioning\_on":"2022-08-01","desc":"RedFlow has supplied 20 systems to the Smart Grid, Smart City (SGSC) project in Scone. Each system contains a RedFlow 5 kW / 10 kWh zinc-bromide battery, resulting in a total 100 kW and 200 kWh of storage. The Smart Grid, Smart City program is an Australian Federal Government Initiative. This project is testing smart grid technology in a rural setting. Smart Grid, Smart City creates a testing ground for new energy supply technologies. At least 30,000 households will participate in the project over three years. \r\n\r\nThe demonstration project gathers information about the benefits and costs of different smart grid technologies in an Australian setting. \r\n\r\nMore information about the project can be found here: http://www.industry.gov.au/Energy/Programmes/SmartGridSmartCity/Pages/AdditionalInformation.aspx","developer":"Ausgrid","electronics\_provider":"SMA America","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":58,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/58/red.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/58/thumb\_red.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/58/partner\_red.png"}},"integrator\_company":"RedFlow","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-32.0506991,"longitude":150.867872,"master\_project\_id":null,"name":"Ausgrid Smart Grid Smart City (Scone Project) - RedFlow","om\_contractor":"","organization":null,"owner\_1":"Ausgrid","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://redflow.com/wp-content/uploads/2012/10/Smart-Grid-Smart-City-R510-Case-Study-No-Addresses.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"Our vision is to enable growth and productivity for globally competitive industries. To help realise this vision, the Department has four key objectives: supporting science and commercialisation, growing business investment and improving business capability, streamlining regulation and building a high performance organisation.","research\_institution":"Australian Government - Department of Industry, Innovation and Science","research\_institution\_link":"http://www.industry.gov.au/Energy/Programmes/SmartGridSmartCity/Pages/AdditionalInformation.aspx","service\_use\_case\_1":"Grid-Connected Residential (Reliability)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"New South Wales","status":"De-Commissioned","street\_address":"Upper Gundy","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-04T16:18:02Z","updated\_at\_by\_admin":"2016-05-04T16:18:02Z","updated\_by":null,"updated\_by\_email":null,"utility":"Ausgrid","utility\_type":"State/Municipal Owned","vendor\_company":"RedFlow","zip":"2337"}},{"project":{"announcement\_on":"2022-06-30","approval\_status":2,"city":"Brisbane","commissioning\_on":"2022-07-01","companion":"320 kW Solar PV","construction\_on":"2022-06-30","contact\_city":"Seventeen Mile Rocks","contact\_country":"Australia","contact\_email":"mio.nakatsuji@redflow.com","contact\_info\_visible":false,"contact\_name":"Mio Nakatsuji-Mather","contact\_phone":"+61 7 3177 9656","contact\_state":"Queensland","contact\_street\_address":"27 Counihan Road","contact\_zip":"4073","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2012-06-01T03:30:19Z","created\_by\_id":21,"debt\_investor":"","decommissioning\_on":"2022-07-01","desc":"RedFlow's M90 energy storage system has been decommissioned and returned to RedFlow following a successful 2 year demonstration. From July 2012 to July 2014 it was installed at the University of Queensland and connected to one of the University's 340 kW solar arrays. The M90 is rated at 90 kW / 240 kWh and houses 24 of RedFlow's ZBMs in a 20 ft shipping container.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":61,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/61/\_MCP7415\_tn.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/61/thumb\_\_MCP7415\_tn.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/61/partner\_\_MCP7415\_tn.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-27.4709331,"longitude":153.0235024,"master\_project\_id":null,"name":"University of Queensland - Redflow M90","om\_contractor":"","organization":null,"owner\_1":"University of Queensland","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.redflow.com/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":90,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Queensland","status":"De-Commissioned","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-04T17:25:31Z","updated\_at\_by\_admin":"2016-05-04T17:25:31Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"RedFlow","zip":""}},{"project":{"announcement\_on":"2022-09-16","approval\_status":1,"city":"Lanai","commissioning\_on":"2022-09-01","companion":"1.2 MW La Ola PV solar farm","construction\_on":"2022-05-01","contact\_city":"Lanai","contact\_country":"United States","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"(808) 548-4811","contact\_state":"Hawaii","contact\_street\_address":"","contact\_zip":"96763","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-01T14:26:16Z","created\_by\_id":23,"debt\_investor":"","decommissioning\_on":null,"desc":"Younicos Power deployed a 1.125 MVA Dynamic Power Resource (DPR) at the Lanai Sustainability Research's 1.5 MW DC / 1.2 MW AC solar farm in order to double the output of the solar and control the ramp rate to +/- 360 kW/min. The solar farm was previously curtailed to 600 kW, and is now operating at full capacity with the DPR.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":63,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/63/Lanai.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/63/thumb\_Lanai.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/63/partner\_Lanai.jpg"}},"integrator\_company":"Younicos","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":20.8165975,"longitude":-156.9273193,"master\_project\_id":null,"name":"Lanai Sustainability Research / La Ola PV Farm - Xtreme Power","om\_contractor":"","organization":"Castle & Cooke","owner\_1":"Castle & Cooke","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.younicos.com/case-studies/lanai-hawai/","primary\_reference1":"http://www.hawaiicleanenergyinitiative.org/storage/media/4\_Hawaii%20Gride%20Energy%20Storage%20Research%20Project%20Summary.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Ramping ","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1125,"size\_kwh":0.45,"size\_kwh\_hours":0,"size\_kwh\_minutes":27.0,"state":"Hawaii","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:38:52Z","updated\_at\_by\_admin":"2016-05-03T01:28:06Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Hawaiian Electric Industries","utility\_type":"","vendor\_company":"Xtreme Power ","zip":""}},{"project":{"announcement\_on":"2022-01-10","approval\_status":1,"city":"Koloa","commissioning\_on":"2022-12-01","companion":"","construction\_on":"2022-09-01","contact\_city":"Lihu'e","contact\_country":"United States","contact\_email":"jpcox@kiuc.coop","contact\_info\_visible":true,"contact\_name":"Kaua'i Island Utility Cooperative","contact\_phone":"808.246.8205","contact\_state":"Hawaii","contact\_street\_address":"4463 Pahe'e Street, Suite 1","contact\_zip":"96766-2000","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":2000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-01T14:37:24Z","created\_by\_id":23,"debt\_investor":"","decommissioning\_on":null,"desc":"The Kaua’i Island Utility Cooperative (KIUC) Xtreme Dynamic Power Resource (DPR) is designed to mitigate the variability of a 3 MW solar PV project for KIUC, as well as provide critical grid support services for the island grid. The DPR will provide responsive reserves to the island utility and correct any frequency and voltage deviations. ","developer":"","electronics\_provider":"Dynapower","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":65,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/65/paradise\_rev2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/65/thumb\_paradise\_rev2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/65/partner\_paradise\_rev2.jpg"}},"integrator\_company":"Younicos","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":21.9066667,"longitude":-159.4691667,"master\_project\_id":null,"name":"Kauai Island Utility Cooperative - Xtreme Power","om\_contractor":"Younicos","organization":"","owner\_1":"Kaua'i Island Utility Cooperative","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://renewablesnow.com/news/xtreme-power-to-sell-energy-storage-facility-to-hawaiian-kiuc-3619/","primary\_reference1":"","projected\_lifetime":"8.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Ramping ","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1500,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Hawaii","status":"Operational","street\_address":"Koloa Substation","systems\_integration":null,"technology\_classification":null,"technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-01T00:01:16Z","updated\_at\_by\_admin":"2016-05-04T18:17:08Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Kauai Island Utility Cooperative","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Xtreme Power ","zip":""}},{"project":{"announcement\_on":"2021-12-29","approval\_status":2,"city":"Watkins","commissioning\_on":"2021-12-15","companion":"Solar PV","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"United States","contact\_email":"frank.novachek@xcelenergy.com","contact\_info\_visible":false,"contact\_name":"Frank Novachek","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1600000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-01T15:03:30Z","created\_by\_id":23,"debt\_investor":"","decommissioning\_on":"2022-06-01","desc":"The Solar-to-Battery (S2B) project was designed to collect operational data on the integration of energy storage and solar energy systems at the Solar Technology Acceleration Center (SolarTAC). The Dynamic Power Resource (DPR) performed Ramp Control, Frequency Response, Voltage Support, and Firming/Shaping along with other valuable services for solar energy. \r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":99000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Electric Power Research Institute","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":66,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/66/Xcel\_DPR\_\_\_Solar.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/66/thumb\_Xcel\_DPR\_\_\_Solar.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/66/partner\_Xcel\_DPR\_\_\_Solar.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.7566228,"longitude":-104.6217403,"master\_project\_id":null,"name":"Xcel Energy - Xtreme Power","om\_contractor":"","organization":null,"owner\_1":"Xcel Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.solartac.org/Documents/Solar%20To%20Battery%20Fact%20Sheet.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"Testing will include • The energy storage system’s ability to effectively slow solar energy ramp rates as seen by the distribution system •Temporarily replace solar PV energy contributions when clouds pass over the PV installations •Effectively extend the solar PV output peak to better match the feeder load peak","research\_institution":"Solar Technology Acceleration Center","research\_institution\_link":"http://www.solartac.org/","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Ramping ","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1500,"size\_kwh":0.666666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":40.0,"state":"Colorado","status":"De-Commissioned","street\_address":"2600-2790 Hudson Mile Rd","systems\_integration":null,"technology\_classification":null,"technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-31T17:28:39Z","updated\_at\_by\_admin":"2016-05-31T17:28:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"Xcel Energy","utility\_type":"Investor Owned","vendor\_company":"Xtreme Power Inc.","zip":"80137"}},{"project":{"announcement\_on":"2022-02-01","approval\_status":1,"city":"Bethel Park","commissioning\_on":"2022-01-30","companion":"","construction\_on":"2022-09-12","contact\_city":"Bethel Park","contact\_country":"United States","contact\_email":"ddisque@massarocms.com","contact\_info\_visible":false,"contact\_name":"David Disque","contact\_phone":"412-589-0139","contact\_state":"PA","contact\_street\_address":"3064 Industrial Boulevard","contact\_zip":"15102","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-04T13:37:17Z","created\_by\_id":17,"debt\_investor":"","decommissioning\_on":null,"desc":"Energy storage allows Bethel Park HS a lower connected load to the grid while allowing the cooling system to capture and store efficient low cost energy for use during high demand and high cost periods. This $73 million dollar 326,000 sq.ft. high school came in 18% under projected costs yet still earned a Green Globes Level 3 designation which is similar to LEED Gold in efficiency. The project was designed by Weber Murphy Fox Architects, the Hayes Design Group and Tower Engineering. \r\n\r\nIceBank energy storage was used which allowed a reduction of the electric chiller size to almost half while increasing efficiency and reducing operating costs. A conventional cooling design would have required 830 tons of chiller to provide cooling during peak times. Instead 432 tons of electric cooling was installed and 2250 net usable tn hours of storage resulting in an average demand reduction of 375 kW.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":68,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/68/bethelpark\_thermal\_storage\_insulated\_and\_roughed\_in.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/68/thumb\_bethelpark\_thermal\_storage\_insulated\_and\_roughed\_in.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/68/partner\_bethelpark\_thermal\_storage\_insulated\_and\_roughed\_in.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.3362589,"longitude":-80.0450687,"master\_project\_id":null,"name":"Bethel Park High School","om\_contractor":"","organization":"Massaro Construction Management Services","owner\_1":"Bethel Park School District","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://wmf-inc.com/2012/03/bethel-park-high-school-achieves-green-globes-level-3-certification-2/","primary\_reference1":"http://www.bpsd.org/Downloads/media%20preview%20fact%20sheet4.pdf","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":375,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Pennsylvania","status":"Operational","street\_address":"309 Church Road","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-01-05T05:42:37Z","updated\_at\_by\_admin":"2016-05-04T19:21:04Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"West Penn Power","utility\_type":"Investor Owned","vendor\_company":"CALMAC","zip":"15102"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Fairbanks","commissioning\_on":"2022-09-19","companion":"","construction\_on":null,"contact\_city":"Fairbanks","contact\_country":"United States","contact\_email":"info@gvea.com","contact\_info\_visible":false,"contact\_name":"info","contact\_phone":"9074521151","contact\_state":"Alaska","contact\_street\_address":"758 Illinois Street PO Box 71249","contact\_zip":"99707","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":35000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-04T16:49:29Z","created\_by\_id":20,"debt\_investor":"","decommissioning\_on":null,"desc":"Completed in December 2003, the BESS is one of GVEA's initiatives to improve the reliability of service to GVEA members. In the event of a generation or transmission related outage, it can provide 27 megawatts of power for 15 minutes. That's enough time for the co-op to start up local generation when there are problems with the Intertie or power plants in Anchorage.\r\n\r\nOne of the requirements for construction of the Intertie was a reactive power supply capable of delivering power should generation fail. At the heart of the world's most powerful energy storage battery are two core components: the Nickel-Cadmium (Ni-Cad) batteries, developed by Saft, and the converter, designed and supplied by ABB. The converter changes the batteries' DC power into AC power ready for use in GVEA's transmission system.\r\n\r\nAwards Received:\r\n\r\n- ABB was awarded the Platts 2003 Global Energy Award for their design and development of the BESS converter.\r\n- The Electric Power Resarch Institue Technology Award for the BESS project at the National Rural Electric Cooperative Association Annual Meeting on February 15 2004.\r\n- Guiness World Record certificate acknowledging that the BESS is the world's most powerful battery on December 10, 2003. During a test of its maximum limit, it discharged 46 megawatts for five minutes\r\n\r\nStatistics:\r\n\r\n- 13,760 liquid electrolyte-filled Ni-Cad cells\r\n- Each battery is roughly the size of a large PC and weighs 165 pounds\r\n- Total BESS weight - 1,500 tons\r\n- Batteries have an anticipated life of 20-30 years \r\n- Can be run at 46 MW for for as long as five minutes\r\n- Operates at over 5 kV DC","developer":"","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":69,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/69/bess.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/69/thumb\_bess.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/69/partner\_bess.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":64.8377778,"longitude":-147.7163889,"master\_project\_id":null,"name":"Golden Valley Electric Association (GVEA) Battery Energy Storage System (BESS)","om\_contractor":"","organization":"","owner\_1":"Golden Valley Electric Association","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Prevented >60% of power-supply related outages; Can be run at 46 MW for for as long as five minutes","primary\_reference":"http://www.gvea.com/energy/bess","primary\_reference1":"http://www.windpowerengineering.com/electrical/battery-stores-40-mw-for-ankorage-emergencies/","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Grid-Connected Residential (Reliability)","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":27000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Alaska","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Nickel-cadmium Battery","technology\_type\_l1":"Nickel-cadmium Battery","technology\_type\_l2":"Nickel based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-25T23:43:55Z","updated\_at\_by\_admin":"2016-06-29T02:56:34Z","updated\_by":null,"updated\_by\_email":null,"utility":"Golden Valley Electric Association","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Saft","zip":""}},{"project":{"announcement\_on":"2022-02-01","approval\_status":1,"city":"Pittsburgh","commissioning\_on":"2022-06-01","companion":"","construction\_on":"2022-08-01","contact\_city":"Pittsburgh","contact\_country":"United States","contact\_email":"zupo@duq.edu","contact\_info\_visible":false,"contact\_name":"Guy Zupo","contact\_phone":"412 396 5421","contact\_state":"PA","contact\_street\_address":"600 Forbes Avenue","contact\_zip":"15282","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-04T17:45:11Z","created\_by\_id":17,"debt\_investor":"","decommissioning\_on":null,"desc":"Duquesne University is a landlocked but growing university in the heart of Pittsburgh. The Power Center, a new LEED project, was added to the central cooling plant upon completion. Additionally, the AJ Palumbo Center HVAC cooling systems were going to be replaced in the near future so additional cooling capacity was needed. Room for an additional cooling tower was hard to come by so it was decided to use the existing cooling tower capacity that was available at night. So an ice making chiller and 6000 tn hours of energy storage were installed to the existing cooling plant. \r\n\r\nThe University is now very cooling diverse as it is able to cool with nighttime and or daytime grid energy using electric chillers, or cool using absorption chillers fired with waste heat or natural gas, or cool with energy storage made and stored off peak. Additionally, the university has a combined heat and power generation system that, when combined with energy storage and absorption cooling opens up many demand response opportunities. The load shed results have been favorable under the Duquesne ACT 129 Demand Response Events that were issued through June 2012. This was done by reducing the electric chiller(s) operation under peak load management parameters.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":70,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/70/Duquesne\_Chillers\_and\_tanksII.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/70/thumb\_Duquesne\_Chillers\_and\_tanksII.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/70/partner\_Duquesne\_Chillers\_and\_tanksII.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.4359724,"longitude":-79.9910907,"master\_project\_id":null,"name":"Duquesne University Energy Storage","om\_contractor":"","organization":"Duquesne University","owner\_1":"Duquesne University","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.duq.edu/about/sustainability/energy-operations","primary\_reference1":"","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":600,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Pennsylvania","status":"Operational","street\_address":"600 Forbes Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-24T02:35:38Z","updated\_at\_by\_admin":"2016-05-04T19:47:50Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Duquesne Light and Power","utility\_type":"Investor Owned","vendor\_company":"CALMAC","zip":"15282"}},{"project":{"announcement\_on":"2022-04-15","approval\_status":2,"city":"Port Angeles","commissioning\_on":"2022-01-04","companion":"","construction\_on":"2022-11-10","contact\_city":"Port Angeles","contact\_country":"United States","contact\_email":"mory.houshmand@catalystet.com","contact\_info\_visible":false,"contact\_name":"Mory Houshmand","contact\_phone":"13604578606","contact\_state":"WA","contact\_street\_address":"856 Gehrke Road","contact\_zip":"98362","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":165000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-05T03:19:51Z","created\_by\_id":27,"debt\_investor":"","decommissioning\_on":"2022-07-03","desc":"The unit experienced a fire in July 2013. For details http://www.peninsuladailynews.com/article/20130709/NEWS/307099993\r\n\r\nA nominal 50 kWh bank of Lithium-ion batteries packaged with a 75 kW inverter and open DR dispatch protocol was installed at a mall in downtown Port Angeles, WA. The storage bank can be charged or discharged via a remote signal by the local utility as a means for load shaping and Rapid Demand Response. The mall can also use the storage bank to peak shave when the storage is not used by the utility. ","developer":"Catalyst Energy Technologies, Inc.","electronics\_provider":"EDA","energy\_management\_software\_provider":null,"funding\_amount\_1":82550.0,"funding\_amount\_2":8000.0,"funding\_amount\_3":14550.0,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"State/Provincial/Regional Grant","funding\_source\_3":"Private/Third Party Equity","funding\_source\_details\_1":"Bonneville Power Administration","funding\_source\_details\_2":"City of Port Angeles","funding\_source\_details\_3":"The Landing Mall","gmaps":true,"hidden":false,"id":71,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/71/IMG\_1216.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/71/thumb\_IMG\_1216.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/71/partner\_IMG\_1216.JPG"}},"integrator\_company":"Catalyst Energy Technologies, Inc.","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.1139075,"longitude":-123.4180322,"master\_project\_id":null,"name":"Port Angeles Landing Mall","om\_contractor":"Catalyst Energy Technologies, Inc.","organization":null,"owner\_1":"Catalyst Energy Technologies, Inc.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.peninsuladailynews.com/article/20130709/NEWS/307099993","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"Yes","research\_desc":"Smart grid and peak load reduction","research\_institution":"Bonneville Power Administration","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":75,"size\_kwh":0.533333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":32.0,"state":"Washington","status":"De-Commissioned","street\_address":"Landing Mall on the Front Street","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-04T19:57:50Z","updated\_at\_by\_admin":"2016-05-04T19:57:50Z","updated\_by":null,"updated\_by\_email":null,"utility":"City of Port Angeles","utility\_type":"Public Owned","vendor\_company":"International Battery","zip":"98362"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Escondido","commissioning\_on":"2022-09-14","companion":"","construction\_on":"2022-01-01","contact\_city":"Escondido","contact\_country":"United States","contact\_email":"gortega@sdcwa.org","contact\_info\_visible":false,"contact\_name":"Greg Ortega","contact\_phone":"760.233.3278","contact\_state":"CA","contact\_street\_address":"610 W 5th Ave","contact\_zip":"92025","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":196000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-05T23:57:04Z","created\_by\_id":20,"debt\_investor":"","decommissioning\_on":null,"desc":"The Lake Hodges project is part of the San Diego County Water Authority's Emergency Storage Project, a system of reservoirs, interconnected pipelines and pumping stations designed to make water available to the San Diego region in the event of an interruption in imported water deliveries.\r\n\r\nThe project connects the city of San Diego’s Hodges Reservoir, also called Lake Hodges, to the Water Authority’s Olivenhain Reservoir via a 1.25-mile pipeline travelling 770 feet vertically. The connection provides the ability to store 20,000 acre-feet of water in Hodges Reservoir for emergency use. The connection will also allow water to be pumped back and forth between Hodges Reservoir and Olivenhain Reservoir. From Olivenhain Reservoir, water can be distributed throughout the region by the Water Authority’s delivery system.\r\n\r\nWhen water is transferred downhill from Olivenhain Reservoir into Hodges Reservoir, it generates up to 40-megawatts of peak hydroelectric energy, enough power to annually sustain nearly 26,000 homes. This energy will help offset project's operating costs and support future Water Authority projects. The Lake Hodges Projects will also help keep Hodges Reservoir at a more constant level during dry seasons, capture runoff during rainy seasons and prevent spills over Hodges Dam.","developer":"San Diego County Water Authority","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":75,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/75/OlivenhainLakeHodgesDam\_AR2007sml.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/75/thumb\_OlivenhainLakeHodgesDam\_AR2007sml.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/75/partner\_OlivenhainLakeHodgesDam\_AR2007sml.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.12,"longitude":-117.09,"master\_project\_id":null,"name":"Olivenhain-Hodges Storage Project","om\_contractor":"ProTrans USA, LLC","organization":null,"owner\_1":"San Diego County Water Authority","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.sdcwa.org/lake-hodges-projects","primary\_reference1":null,"projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":40000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-04T20:02:29Z","updated\_at\_by\_admin":"2016-05-04T20:02:29Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"","zip":"92033"}},{"project":{"announcement\_on":"2022-06-06","approval\_status":1,"city":"Raleigh","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Raleigh","contact\_country":"United States","contact\_email":"joe.baden@doa.nc.gov","contact\_info\_visible":false,"contact\_name":"Joe Baden","contact\_phone":"919-807-4096","contact\_state":"NC","contact\_street\_address":"301 N. Wilmington St., Suite 450","contact\_zip":"27601","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-06T16:35:56Z","created\_by\_id":29,"debt\_investor":"","decommissioning\_on":null,"desc":"Pepco Energy Services (PES) provided an energy services performance contract project to the State of North Carolina, and selected DN Tanks to build a 2.7 MG (million gallons) stratified chilled water Thermal Energy Storage (TES) tank on the state capital campus in downtown Raleigh. \r\n\r\nThe precast, prestressed, wire-wound concrete TES tank is at the heart of this significant energy savings project. Coupled with a new high efficiency packaged chilled water plant, this TES tank is capable of delivering 27,260 ton-hrs of cooling capacity. The system is the primary chilled water source for 3.5 million square feet in 20 buildings. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":76,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/76/TES\_Raleigh\_Tank.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/76/thumb\_TES\_Raleigh\_Tank.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/76/partner\_TES\_Raleigh\_Tank.jpg"}},"integrator\_company":"PEPCO Energy Solutions","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.7749644,"longitude":-78.6403675,"master\_project\_id":null,"name":"State of North Carolina - DN Tanks","om\_contractor":"","organization":"","owner\_1":"The State of North Carolina","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.dntanks.com/projects/thermal-energy-storage-in-north-carolina/","primary\_reference1":"","projected\_lifetime":"50.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2590,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"North Carolina","status":"Operational","street\_address":"Salsbury St. ","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-11-29T17:55:40Z","updated\_at\_by\_admin":"2016-05-04T21:18:07Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Progress Energy Carolinas","utility\_type":"","vendor\_company":"DN Tanks","zip":"27601"}},{"project":{"announcement\_on":"2022-09-01","approval\_status":1,"city":"Presidio","commissioning\_on":"2022-04-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"lajones@aep.com","contact\_info\_visible":false,"contact\_name":"Larry Jones","contact\_phone":"361-881-5300","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"S&C Electric Company","contractor\_2":"","contractor\_3":"","cost\_CAPEX":25000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-06T23:18:47Z","created\_by\_id":20,"debt\_investor":"","decommissioning\_on":null,"desc":"The Big-Old Battery (BOB) is a 4 MW sulfur sodium battery providing backup power to the town of Presidio, Texas. Presidio currently operates with an aging transmission grid and is vulnerable to outages from the Texas plains' powerful electrical storms. BOB will fix this problem and do much more. Overall, BOB provides the following benefits:\r\n\r\n- Due to its quick response, the battery will address voltage fluctuations and momentary outages. \r\n- In the event of an outage on the radial transmission line providing power to Presidio, the battery can supply four megawatts of uninterrupted power for up to eight hours. This will also allow for a transfer of electricity sourcing from the Texas grid to that of neighboring Comisiόn Federal de Electricidad (CFE) during emergency situations. This process can often take several hours. \r\n- The battery will allow for maintenance on the new transmission line being built from Marfa to Presidio without loss of electric service. \r\n\r\nWatch \"ETT's Presidio NAS® Battery: A Story of Technology, Tenacity and Teamwork\" - http://www.youtube.com/watch?v=54\_xP0NzY7M","developer":"American Electric Power","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":80,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/80/BOB.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/80/thumb\_BOB.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/80/partner\_BOB.jpg"}},"integrator\_company":"S&C Electric Company","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":29.5607383,"longitude":-104.3721465,"master\_project\_id":null,"name":"Presidio NAS Energy Storage System - American Electric Power","om\_contractor":"S&C Electric Company","organization":"","owner\_1":"Electric Transmission Texas (American Electric Power)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":" Successfully received 2.5 million kWh during 2011","primary\_reference":"http://www.ettexas.com/projects/docs/NaS\_Battery\_Overview.pdf","primary\_reference1":"https://secure.in.gov/oed/files/Tom\_Weaver\_--\_American\_Electric\_Power.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":4000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-26T07:11:00Z","updated\_at\_by\_admin":"2016-05-04T21:22:41Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Electric Transmission Texas","utility\_type":"Investor Owned","vendor\_company":"NGK-Locke, Inc.","zip":""}},{"project":{"announcement\_on":"2022-06-19","approval\_status":2,"city":"Desert Center","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Santa Monica","contact\_country":"United States","contact\_email":"slowe@eaglecrestenergy.com; ddivine@eaglecrestenergy.com","contact\_info\_visible":false,"contact\_name":"Steve Lowe; Doug Divine","contact\_phone":"310-450-9090","contact\_state":"CA","contact\_street\_address":"3000 Ocean Park Blvd #1020","contact\_zip":"90405","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-07T18:42:16Z","created\_by\_id":20,"debt\_investor":"","decommissioning\_on":null,"desc":"Eagle Mountain Mine was operated by Kaiser Steel Corporation from 1948 to 1982 for the mining and concentrating of iron ore through excavation of four open pits located on land. Eagle Crest Energy obtained exclusive rights to study the site for development of a hydroelectric project from the Federal Energy Regulatory Commission. Using open mine pits as reservoirs, the Eagle Mountain Pumped Storage Project will store water in an upper reservoir for later release through an underground power plant to the lower reservoir, generating electricity during peak hours when it is needed most.\r\n\r\nThe Eagle Mountain Pumped Storage Project will utilize four 325 MW reversible hydroelectric turbines to provide 1300 MW of firm, stable, and dispatchable power when needed. It will provide electricity during the peak electrical demand periods, unexpected generation outages, and help correct and balances in the southwestern grid. Through its ability to store the off-peak energy produced by windmills, solar panels, and baseload nuclear and fossil fuel plants, this single project can accomplish the equivalent of many smaller peak-energy projects. This project will also help make renewable wind and solar projects fully integrated, reliable generation sources.\r\n\r\nProject Updates:\r\n\r\n7/24/14 - GEI Consultants announced that the project has received its FERC licensing. Read the press release: http://goo.gl/Mz30wS\r\n\r\n7/7/15 - http://www.hydroworld.com/articles/2015/07/eagle-crest-buys-site-for-1-300-mw-pumped-storage-hydro-project.html\r\n\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":81,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.7133313,"longitude":-115.4004287,"master\_project\_id":null,"name":"Eagle Mountain Pumped Storage Project","om\_contractor":"","organization":null,"owner\_1":"Eagle Crest Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Not yet operational","primary\_reference":"http://eaglemountainenergy.net/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1300000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Closed-loop Pumped Hydro Storage","technology\_type\_l1":"Closed-loop Pumped Hydro Storage","technology\_type\_l2":"Closed-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-04T22:01:55Z","updated\_at\_by\_admin":"2016-05-04T22:01:55Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-12","approval\_status":1,"city":"Tucson","commissioning\_on":"2022-08-07","companion":"Cogeneration plants at the University","construction\_on":"2022-09-22","contact\_city":"Tucson","contact\_country":"United States","contact\_email":"mstonge@email.arizona.edu","contact\_info\_visible":false,"contact\_name":"Mark St. Onge","contact\_phone":"","contact\_state":"AZ","contact\_street\_address":"The University of Arizona","contact\_zip":"85717","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-07T19:07:29Z","created\_by\_id":17,"debt\_investor":"","decommissioning\_on":null,"desc":"Ice storage technology is both common and unique. It is common since it does for cooling what a domestic water heater does for hot water. As a unique cooling option, ice storage is the only air-conditioning system that utilizes plentiful nighttime produced electricity to generate and store daytime cooling. As a result, it provides the key benefit of lowering greenhouse gas emissions along with reducing the cost of cooling from on-peak electric demand. \r\n\r\nIn utility-driven cooling applications, ice storage provides a nighttime electric load to store cooling. In the U of A cogeneration application however, ice storage not only stores the cooling, it also provides a nighttime electric load in order to produce steam for use by the University Medical Center. \r\n\r\nThe university placed three separate orders for energy storage tanks and they were added to two of their three existing central plants in 2004, 2006 and 2007. There are 205 tanks total at the two plants.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":82,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/82/UofA\_Icetanks-\_crop.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/82/thumb\_UofA\_Icetanks-\_crop.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/82/partner\_UofA\_Icetanks-\_crop.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":32.237685,"longitude":-110.951927,"master\_project\_id":null,"name":"University of Arizona - Calmac","om\_contractor":"","organization":"","owner\_1":"University of Arizona","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.calmac.com/large-energy-storage-project-university-of-arizona","primary\_reference1":"http://www.calmac.com/stuff/contentmgr/files/0/6cfa592c0d64b5f017dc1fcb28a597d1/files/universityofarizona\_distributedenergymagazine.pdf","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":3000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Arizona","status":"Operational","street\_address":"1339 E. Helen Street","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-11-29T17:29:32Z","updated\_at\_by\_admin":"2016-05-04T22:25:23Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Tucson Electric Power","utility\_type":"Investor Owned","vendor\_company":"CALMAC","zip":"85717"}},{"project":{"announcement\_on":"2022-02-11","approval\_status":1,"city":"Los Angeles","commissioning\_on":"2022-07-17","companion":"","construction\_on":"2022-05-15","contact\_city":"Los Angeles","contact\_country":"United States","contact\_email":"fairclar@email.laccd.edu; Tandrews@Calmac.com; Martin.howell@arup.com","contact\_info\_visible":false,"contact\_name":"Tony Fairclough; Terry Andrews; Martin Howell","contact\_phone":"213-596-0315","contact\_state":"CA","contact\_street\_address":"355 North Vermont Avenue","contact\_zip":"90029","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-07T19:46:53Z","created\_by\_id":17,"debt\_investor":"","decommissioning\_on":null,"desc":"LACCD is the largest community college in the United States. It is currently undertaking the largest public sector sustainable building effort in the United States. All new buildings are being built to LEED certification requirements and existing buildings are being retrofitted for maximum efficiency, an effort which includes 44 new buildings and 2 satellite campuses. 308 tanks are spread among 7 of the community college district campuses. These include the Southwest LA Campus, West LA Campus, East LA Campus, Pierce College Campus, Van de Kamp Campus, Mission Campus and the Vermont Campus. The SW LA, East LA and West LA campuses are served by SCE (Southern CA Edison) while the other campuses are in the LA DWP utility district. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":83,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/83/LAPC\_38.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/83/thumb\_LAPC\_38.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/83/partner\_LAPC\_38.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.086772,"longitude":-118.291731,"master\_project\_id":null,"name":"Los Angeles Community College District - Calmac","om\_contractor":"","organization":"","owner\_1":"Los Angeles Community College District","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.green-technology.org/gcccollege-gcschools/images/LACCD\_Sustainable\_Building\_Pgm\_1.pdf","primary\_reference1":"","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":4620,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"855 North Vermont Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-11-24T18:00:47Z","updated\_at\_by\_admin":"2016-05-18T23:47:02Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Los Angeles Department of Water and Power","utility\_type":"State/Municipal Owned","vendor\_company":"CALMAC","zip":"90029"}},{"project":{"announcement\_on":"2022-03-04","approval\_status":1,"city":"Menlo Park","commissioning\_on":"2022-05-01","companion":"","construction\_on":"2022-06-05","contact\_city":"","contact\_country":"United States","contact\_email":"tandrews@calmac.com","contact\_info\_visible":false,"contact\_name":"Terry Andrews (Western Regional Mgr.)","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-07T19:54:31Z","created\_by\_id":17,"debt\_investor":"","decommissioning\_on":null,"desc":"Ice thermal storage tanks are installed in the parking lot structure under the building, designed to meet all of the comfort cooling loads and recharged on a daily cycle. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":84,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/84/hewlettfoundation\_leedgold\_copy.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/84/thumb\_hewlettfoundation\_leedgold\_copy.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/84/partner\_hewlettfoundation\_leedgold\_copy.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.423912,"longitude":-122.193597,"master\_project\_id":null,"name":"William & Flora Hewlett Foundation","om\_contractor":"","organization":"Calmac","owner\_1":"Hewlett Foundation","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.calmac.com/the-hewlett-foundation--leed-gold","primary\_reference1":"","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":124,"size\_kwh":9.0,"size\_kwh\_hours":9,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"2121 Sand Hill Road","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-17T20:11:04Z","updated\_at\_by\_admin":"2016-05-06T00:23:30Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"CALMAC","zip":"94025"}},{"project":{"announcement\_on":"2022-02-12","approval\_status":1,"city":"El Paso","commissioning\_on":"2022-04-21","companion":"","construction\_on":"2022-10-14","contact\_city":"El Paso","contact\_country":"United States","contact\_email":"rlobato@epcc.edu","contact\_info\_visible":false,"contact\_name":"Richard Lobato","contact\_phone":"N/A","contact\_state":"Texas","contact\_street\_address":"9050 Viscount Boulevard","contact\_zip":"79925","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-07T20:23:03Z","created\_by\_id":17,"debt\_investor":"","decommissioning\_on":null,"desc":"As the fastest growing community college in Texas, El Paso Community College (EPCC) needed to meet the needs of an increasing student population and the third highest electric utility rates in the nation. The college turned to energy-efficient solutions including 89 energy storage tanks which they installed at 3 different campus locations. \r\n\r\nAfter a few years, the payback was so significant for the Valle Verde campus that the college converted the entire plant to full ice storage versus partial ice storage. This allowed the campus to be completely cooled by ice storage during peak demand, saving an additional 25 percent in utility costs or more than $145,000 dollars per year. There are now 62 units at Valle Verde.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":85,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/85/VV.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/85/thumb\_VV.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/85/partner\_VV.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":31.753527,"longitude":-106.366913,"master\_project\_id":null,"name":"EPCC Thermal Storage: Valle Verde","om\_contractor":"","organization":"El Paso Community College","owner\_1":"El Paso Community College","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.trane.com/commercial/Uploads/pdf/newsRoom/EL%20Paso%20Community%20College%20news%20release%20FINAL%20080910%20\_3\_.pdf","primary\_reference1":"","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":930,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"919 Hunter Drive","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-18T05:59:22Z","updated\_at\_by\_admin":"2016-05-04T23:17:24Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"El Paso Electric Company","utility\_type":"Public Owned","vendor\_company":"CALMAC","zip":"79925"}},{"project":{"announcement\_on":"2022-02-02","approval\_status":1,"city":"Los Angeles","commissioning\_on":"2022-06-05","companion":"","construction\_on":"2022-07-02","contact\_city":"Los Angeles","contact\_country":"United States","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"Wayne Patchin","contact\_phone":"661-857-3235","contact\_state":"CA","contact\_street\_address":"6834 Hollywood Boulevard","contact\_zip":"90028","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-07T20:44:56Z","created\_by\_id":17,"debt\_investor":"","decommissioning\_on":null,"desc":"El Capitan was named LA BOMA Building of the Year in 1999. It is across from the Kodak Theatre on Hollywood's \"Walk of Fame\". A chiller and series of energy storage tanks are on the roof of the building and meet all of the cooling load during the peak times of the utility. The installation was part of a major retrofit project in 1997 and 1998. It yielded a 25 percent reduction in annual energy costs, saving the building management approximately $23,000 in utility costs each year. Additionally, building management has incrementally increased the number of hours the building relies on for energy storage, stabilizing energy costs as new tenants move into the building. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":86,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/86/ElCapitan\_four\_color\_tanks.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/86/thumb\_ElCapitan\_four\_color\_tanks.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/86/partner\_ElCapitan\_four\_color\_tanks.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.101323,"longitude":-118.339741,"master\_project\_id":null,"name":"Calmac El Capitan","om\_contractor":"","organization":"N/A","owner\_1":"El Capitan","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.achrnews.com/articles/building-restoration-features-thermal-energy-storage-system","primary\_reference1":"","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":150,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"6834 Hollywood Boulevard","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-11T22:33:47Z","updated\_at\_by\_admin":"2016-05-04T23:34:43Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Los Angeles Department of Water and Power","utility\_type":"Public Owned","vendor\_company":"CALMAC","zip":"90028"}},{"project":{"announcement\_on":"2022-05-01","approval\_status":1,"city":"Garden City","commissioning\_on":"2022-01-09","companion":"","construction\_on":"2022-09-01","contact\_city":"","contact\_country":"","contact\_email":"guy.sliker@nypa.gov ","contact\_info\_visible":false,"contact\_name":"Guy Silker","contact\_phone":"(914) 287 3792","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":4300000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-08T18:07:37Z","created\_by\_id":20,"debt\_investor":"","decommissioning\_on":null,"desc":"Long Island Bus’s Battery Energy Storage System (BESS) powers the natural gas compressors LI Bus uses to refuel its fixed route vehicles during the day. LI Bus' entire fleet of 330 buses runs on compressed natural gas utilizing an environmentally responsible technology to transport 30 million riders annually. BESS automatically recharges itself at night when low-demand makes electric rates less expensive. It lets LI Bus improve its energy efficiency, reduce costs and provide emergency backup power. \r\n\r\nThis device is among the first and largest sodium sulfur cell technology installations in the United States. It also marks the first time this type of advanced battery technology is being used by a consumer with an electric meter. That's an important development because storing power based on this battery process has the potential to allow customers to capture energy from sources such as wind or tidal power. They can then use the electricity when it's most needed.\r\n","developer":"New York Power Authority","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":2400000.0,"funding\_amount\_2":300000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"Federal/National Grant","funding\_source\_3":"","funding\_source\_details\_1":"NYSERDA, the United States Department of Energy, Sandia National Laboratories, and others - Grants & Support","funding\_source\_details\_2":"Department of Energy - Petroleum Overcharge Restitution fund","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":89,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/89/LIBUS.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/89/thumb\_LIBUS.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/89/partner\_LIBUS.jpg"}},"integrator\_company":"Long Island Power Authority","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.7267682,"longitude":-73.6342954,"master\_project\_id":null,"name":"Long Island Bus BESS - New York Power Authority","om\_contractor":"","organization":"New York Power Authority","owner\_1":"Metro Transit Authority (NYC)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"75% efficiency, saving $240,000/year in energy costs, relieving peak load on highly congested grid","primary\_reference":"http://www.sandia.gov/ess/docs/pr\_conferences/2009/eckroad.pdf","primary\_reference1":"http://www.mta.info/press-release/mta-headquarters/mta-li-bus-and-nypa-install-first-sodium-sulfur-battery-energy","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_5":"Transmission Congestion Relief","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1000,"size\_kwh":6.5,"size\_kwh\_hours":6,"size\_kwh\_minutes":30.0,"state":"New York","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:00:28Z","updated\_at\_by\_admin":"2016-05-05T00:10:47Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"New York Power Authority (NYPA)","utility\_type":"Public Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":"2022-02-15","approval\_status":2,"city":"San Diego","commissioning\_on":"2022-05-01","companion":"","construction\_on":"2022-06-22","contact\_city":"San Diego","contact\_country":"United States","contact\_email":"CPascarella@kilroyrealty.com","contact\_info\_visible":false,"contact\_name":"Clem Pascarella","contact\_phone":"619-228-2095","contact\_state":"CA","contact\_street\_address":"2365 Northside Drive Suite 130","contact\_zip":"92108","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-08T20:22:45Z","created\_by\_id":17,"debt\_investor":"","decommissioning\_on":null,"desc":"Energy storage tanks in the basement of the parking structure meet the peak cooling loads of 3 office towers from 6 am to 6 pm during the work week in the summer, charging from 10 pm - 6 am (Off-peak) 5 days / week. In the winter, the cooling loads are lower so the energy storage tanks meet the cooling requirements often for up to a week without recharging.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":90,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/90/90\_ice1.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/90/thumb\_90\_ice1.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/90/partner\_90\_ice1.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.7832979,"longitude":-117.1269331,"master\_project\_id":null,"name":"Mission City Office Complex - Calmac","om\_contractor":"","organization":null,"owner\_1":"Kilroy Realty","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.calmac.com/featured-energy-storage-installations","primary\_reference1":null,"projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":500,"size\_kwh":7.0,"size\_kwh\_hours":7,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"2365 Northside Drive","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2016-05-05T00:26:12Z","updated\_at\_by\_admin":"2016-05-05T00:26:12Z","updated\_by":null,"updated\_by\_email":null,"utility":"SDG&E","utility\_type":"Investor Owned","vendor\_company":"CALMAC","zip":"92108"}},{"project":{"announcement\_on":"2022-07-09","approval\_status":1,"city":"Dublin","commissioning\_on":"2022-03-15","companion":"SR Jail Smart Grid – local generation (wind, solar PV, fuel cell & diesel generators)","construction\_on":"2022-11-15","contact\_city":"Oakland","contact\_country":"United States","contact\_email":"Matt.muniz@acgov.org","contact\_info\_visible":false,"contact\_name":"Matt Muniz","contact\_phone":"510-208-9518","contact\_state":"CA","contact\_street\_address":"1401 Lakeside Dr., Ste 1115","contact\_zip":"94612","contractor\_1":"Chevron Energy","contractor\_2":"","contractor\_3":"","cost\_CAPEX":4000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-13T18:35:41Z","created\_by\_id":20,"debt\_investor":"","decommissioning\_on":null,"desc":"Alameda County’s Santa Rita Jail smart grid demonstration project in Dublin, California, is the country’s largest CERTS-based microgrid with renewable generation and large-scale energy storage. Designed and constructed by Chevron Energy Solutions, this first-of-its-kind project is anticipated to be a powerful enabler toward a smarter grid. It brings together multiple partners and technologies to deliver an essential component of the U.S. Department of Energy’s plan to deploy an advanced, interconnected energy network capable of meeting the consumption needs of tomorrow.\r\n\r\nTotal Capex for the Smart Grid project was $11,683,000. Funding sources included DOE, CEC, PG&E (SGIP), Chevron and Alameda County.\r\n\r\nFrom: http://www.acgov.org/pdf/SRJSmartGridOverview.pdf","developer":"Chevron Energy","electronics\_provider":"S&C Electric","energy\_management\_software\_provider":"","funding\_amount\_1":1983555.0,"funding\_amount\_2":2500000.0,"funding\_amount\_3":6900000.0,"funding\_source\_1":"State/Provincial/Regional RD&D","funding\_source\_2":"State/Provincial/Regional Grant","funding\_source\_3":"Federal/National American Recovery and Reinvestment Act of 2009 - RD&D","funding\_source\_details\_1":"California Energy Commission (CEC) - Public Interest Energy Resource (PIER) Program","funding\_source\_details\_2":"PG&E - Self Generation Incentive Program","funding\_source\_details\_3":"US Department of Energy Office of Electricity - / Office of Electric Delivery and Energy Reliability Research and Development","gmaps":true,"hidden":false,"id":91,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/91/SRJ.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/91/thumb\_SRJ.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/91/partner\_SRJ.jpg"}},"integrator\_company":"Chevron Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.7176811,"longitude":-121.8879609,"master\_project\_id":null,"name":"Santa Rita Jail Smart Grid - Alameda County RDSI CERTS Microgrid Demonstration ","om\_contractor":"S&C Electric / APT / Encorp / BYD / Satcon","organization":"","owner\_1":"Santa Rita Jail (Alameda County)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"See Link Above","primary\_reference":"https://www.smartgrid.gov/files/SRJ\_DOE\_Final\_Report\_Submitted\_20140717.pdf","primary\_reference1":"http://naatbatt.org/wp-content/uploads/2015/07/Matt-Muniz.pdf","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":" In summary, demonstrating a dispatchable, islandable AC microgrid at the Santa Rita Jail will demonstrate most of the requirements of a Modern Grid. Additionally, each of these system benefits supports CA State’s energy policy goals: energy efficiency, distributed resources and renewable generation. When proven successful this model can be implemented in facilities throughout California and the nation.","research\_institution":"National Energy Technology Laboratory (US DOE) & Public Interest Energy Research Program (CEC)","research\_institution\_link":"http://www.netl.doe.gov/about/organization.html","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_5":"Onsite Renewable Generation Shifting","service\_use\_case\_6":"Renewables Energy Time Shift","service\_use\_case\_7":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":2000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"5325 Broder Blvd.","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T21:40:41Z","updated\_at\_by\_admin":"2016-05-05T00:35:03Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"BYD","zip":"94568"}},{"project":{"announcement\_on":"2022-02-07","approval\_status":1,"city":"Fort Collins","commissioning\_on":"2022-08-24","companion":"","construction\_on":"2022-04-14","contact\_city":"Fort Collins","contact\_country":"United States","contact\_email":"Stur@psdschools.org","contact\_info\_visible":false,"contact\_name":"Stuart Reeve ","contact\_phone":"970-490-3502","contact\_state":"CO","contact\_street\_address":"2445 LaPorte Ave.","contact\_zip":"80528","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-13T19:49:56Z","created\_by\_id":17,"debt\_investor":"","decommissioning\_on":null,"desc":"Fossil Ridge High School is 60% more efficient than a comparable building. This school won a first place ASHRAE Technology Award in the New Institutional Category, is certified LEED Silver and received an ENERGY STAR Rating of 94. In the school year (July 1, 2010-June 30, 2011) FRHS performed at 6.6 kWh/SF/Yr. and 41.1 kBtu/SF/Yr. (natural gas and electric).","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":93,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/93/IceBank\_tanks\_Fossil\_Ridge\_HS.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/93/thumb\_IceBank\_tanks\_Fossil\_Ridge\_HS.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/93/partner\_IceBank\_tanks\_Fossil\_Ridge\_HS.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":40.512543,"longitude":-105.019813,"master\_project\_id":null,"name":"Fossil Ridge High School","om\_contractor":"","organization":"Poudre School District","owner\_1":"Poudre School District","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.calmac.com/fossil-ridge-high-school--leed-silver","primary\_reference1":"","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":200,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Colorado","status":"Operational","street\_address":"5400 Ziegler Road","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-04T03:21:13Z","updated\_at\_by\_admin":"2016-05-11T21:03:14Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"City of Fort Collins","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"CALMAC","zip":"80528"}},{"project":{"announcement\_on":"2022-04-04","approval\_status":1,"city":"Fort Sill","commissioning\_on":null,"companion":"2.5 kW Wind, 30 kW PV, 400 kW NG Generators","construction\_on":null,"contact\_city":"Menomonee Falls","contact\_country":"United States","contact\_email":"mmontague@ensync.com","contact\_info\_visible":false,"contact\_name":"Michelle Montague","contact\_phone":"(262) 253-9800","contact\_state":"WI","contact\_street\_address":"N93 W14475 Whitaker Way","contact\_zip":"53051","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-13T20:11:48Z","created\_by\_id":35,"debt\_investor":"","decommissioning\_on":null,"desc":"ZBB provided a 500 kWH energy storage system for use in a microgrid application at a U.S. Army facility in Ft. Sill, OK.","developer":"Eaton Corporation","electronics\_provider":"Eaton Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"U.S. Army RDECOM, ERDC-CERL contract W9132T-10-C-0018","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":94,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/94/sill.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/94/thumb\_sill.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/94/partner\_sill.png"}},"integrator\_company":"Eaton Corporation","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"SPP","latitude":34.6606037,"longitude":-98.4046307,"master\_project\_id":null,"name":"Fort Sill Microgrid - Eaton Corporation","om\_contractor":"","organization":"EnSync Energy (formerly ZBB Energy Corporation)","owner\_1":"U.S. Army","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.marketwired.com/press-release/zbb-energy-to-provide-energy-storage-for-armys-micro-grid-project-nyse-amex-zbb-1421812.htm","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"U.S. Army Engineer Research and Development Center and the Construction Engineering Research Laboratory","research\_institution\_link":"www.erdc.usace.army.mil","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Oklahoma","status":"Operational","street\_address":"Fort Sill Boulevard","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-28T03:41:36Z","updated\_at\_by\_admin":"2016-05-17T21:29:29Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"TBD","utility\_type":"","vendor\_company":"EnSync Energy (formerly ZBB Energy Corporation)","zip":""}},{"project":{"announcement\_on":"2022-09-30","approval\_status":1,"city":"Chicago","commissioning\_on":"2022-09-30","companion":"","construction\_on":null,"contact\_city":"Menomonee Falls","contact\_country":"United States","contact\_email":"mmontague@ensync.com; Brian.Mollohan@netl.doe.gov","contact\_info\_visible":false,"contact\_name":"Michelle Montague, Brian Mollohan","contact\_phone":"262.253.9800 ext. 124","contact\_state":"WI","contact\_street\_address":"N93 W14475 Whitaker Way","contact\_zip":"53051","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":13575621.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-13T20:19:49Z","created\_by\_id":35,"debt\_investor":"","decommissioning\_on":null,"desc":"ZBB provided a 500 kWH energy storage system for use in a microgrid application for the Galvin Institute's \"Perfect Power\" system at the Illinois Institute of Technology Campus in Chicago, IL","developer":"","electronics\_provider":"EnSync Energy (formerly ZBB Energy Corporation)","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"$7,648,682","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":97,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/97/Illinois\_Institution\_of\_Technology.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/97/thumb\_Illinois\_Institution\_of\_Technology.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/97/partner\_Illinois\_Institution\_of\_Technology.jpg"}},"integrator\_company":"City Cottage Group","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":41.8343395,"longitude":-87.6237866,"master\_project\_id":null,"name":"EnSync Energy (formerly ZBB Energy Corporation) Illinois Institute of Technology RDSI Perfect Power Demonstration","om\_contractor":"","organization":" EnSync Energy (formerly ZBB Energy Corporation), National Energy Technology Laboratory ","owner\_1":"IIT","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.sgiclearinghouse.org/sites/default/files/projdocs/1649.pdf","primary\_reference1":"https://www.smartgrid.gov/files/FinalTechnicalReport\_PerfectPower.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Illinois","status":"Operational","street\_address":"3300 S Federal St","systems\_integration":null,"technology\_classification":null,"technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-28T03:59:02Z","updated\_at\_by\_admin":"2016-05-11T21:45:43Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"ComEd","utility\_type":"Investor Owned","vendor\_company":"EnSync Energy (formerly ZBB Energy Corporation)","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Port Hueneme","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"Menomonee Falls","contact\_country":"United States","contact\_email":"ddeeds@ensync.com","contact\_info\_visible":false,"contact\_name":"Dale Deeds","contact\_phone":"262.253.9800","contact\_state":"WI","contact\_street\_address":"N93 W14475 Whitaker Way","contact\_zip":"53051","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-13T20:33:28Z","created\_by\_id":35,"debt\_investor":"","decommissioning\_on":"2021-12-31","desc":"\*\*\*This project was successfully operational and met all the performance demonstration requirements and has since been decommissioned.\r\n\r\nThe ZBB EnerSystem includes the ZBB power and energy control center, a ZBB 50 kWh zinc-bromide flow battery module for a completely regulated energy storage system ready for interconnection to a range of modular, flexible, energy sources and outputs, while performing power and energy management needs. ","developer":"","electronics\_provider":"ZBB Energy Corporation","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":98,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/98/Port\_Hueneme\_Naval\_Facility\_\_1\_.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/98/thumb\_Port\_Hueneme\_Naval\_Facility\_\_1\_.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/98/partner\_Port\_Hueneme\_Naval\_Facility\_\_1\_.JPG"}},"integrator\_company":"SEI Inc.","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.1477829,"longitude":-119.1951074,"master\_project\_id":null,"name":"Port Hueneme Naval Facility - EnSync Energy (formerly ZBB)","om\_contractor":"","organization":null,"owner\_1":"U.S. Navy","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://en.wikipedia.org/wiki/Naval\_Construction\_Battalion\_Center\_Port\_Hueneme","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":25,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-18T21:24:41Z","updated\_at\_by\_admin":"2016-05-18T21:24:41Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"ZBB Energy Corporation","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Perrysburg","commissioning\_on":"2022-02-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Frank.Butler@O-I.com","contact\_info\_visible":false,"contact\_name":"Frank Butler","contact\_phone":"567-336-5001","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-13T20:37:10Z","created\_by\_id":17,"debt\_investor":"","decommissioning\_on":null,"desc":"O-I World Headquarters has a 400 ton peak cooling load. This building is an owner occupied office building with a LEED Silver certification.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":100,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/100/Owens-Illinois\_Building\_photo.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/100/thumb\_Owens-Illinois\_Building\_photo.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/100/partner\_Owens-Illinois\_Building\_photo.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"MISO","latitude":41.5285417,"longitude":-83.647721,"master\_project\_id":null,"name":"O-I World Headquarters","om\_contractor":"","organization":"O-I ","owner\_1":"O-I ","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.o-i.com/Newsroom/O-I-World-Headquarters-Achieves-LEED-Certification/","primary\_reference1":"","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":12.0,"size\_kwh\_hours":12,"size\_kwh\_minutes":0.0,"state":"Ohio","status":"Operational","street\_address":"One Michael Owens Way","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-01-28T04:21:33Z","updated\_at\_by\_admin":"2016-05-11T22:10:06Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"CALMAC","zip":"43551"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Honolulu","commissioning\_on":"2022-07-01","companion":"","construction\_on":null,"contact\_city":"Menomonee Falls","contact\_country":"United States","contact\_email":"mmontague@ensync.com","contact\_info\_visible":false,"contact\_name":"Michelle Montague","contact\_phone":"262.253.9800","contact\_state":"WI","contact\_street\_address":"N93 W14475 Whitaker Way","contact\_zip":"53051","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-13T20:47:36Z","created\_by\_id":35,"debt\_investor":"","decommissioning\_on":null,"desc":"The ZBB EnerStore will be used as part of Pualani Manor’s new state-of-the-art elevator system that utilizes power from the grid and renewable energy. The system will manage the energy usage from a 20 kW photovoltaic array that will also allow the elevator to be operated during emergency situations and extended power outages. With the expandable, modular, and scalable ZBB EnerStore unit, the non-profit mid-rise, multi-family apartment can add more inputs of PV or other alternative energy sources and/or additional storage devices in the future.","developer":"","electronics\_provider":"ZBB Energy Corporation","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":102,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/102/Pualani\_Manor\_\_1\_.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/102/thumb\_Pualani\_Manor\_\_1\_.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/102/partner\_Pualani\_Manor\_\_1\_.jpg"}},"integrator\_company":"NIDON","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":21.32166,"longitude":-157.864528,"master\_project\_id":null,"name":"Pualani Manor- EnSync Energy (formerly ZBB)","om\_contractor":"","organization":null,"owner\_1":"Hawaiian Properties Ltd.","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://c.ymcdn.com/sites/www.peakload.org/resource/resmgr/14th\_fall\_conf\_submissions/115\_kuhl\_advanced\_energy\_sto.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":60,"size\_kwh":2.5,"size\_kwh\_hours":2,"size\_kwh\_minutes":30.0,"state":"Hawaii","status":"Operational","street\_address":"1216 Pua Lane","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-11T22:30:13Z","updated\_at\_by\_admin":"2016-05-11T22:30:13Z","updated\_by":null,"updated\_by\_email":null,"utility":"Hawaiian Electric Industries","utility\_type":"","vendor\_company":"ZBB Energy Corporation","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"San Nicholas Island","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":"Menomonee Falls","contact\_country":"United States","contact\_email":"ddeeds@ensync.com","contact\_info\_visible":false,"contact\_name":"Dale Deeds","contact\_phone":"262.253.9800","contact\_state":"WI","contact\_street\_address":"N93 W14475 Whitaker Way","contact\_zip":"53051","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-13T20:51:32Z","created\_by\_id":35,"debt\_investor":"","decommissioning\_on":"2021-12-31","desc":"\*\*\*This project was completely operational and met all the performance expectations for the demonstration and is now decommissioned.\r\n\r\nZBB is providing a 1000 kWH / 500 kW rated energy storage system for use in a micro-grid application at the San Nicolas Island Naval Facility. The ZBB EnerSystem will be used continuously in an ongoing operational mode to minimize diesel gen set run-time in conjunction with wind turbines and future PV arrays on the island.","developer":"","electronics\_provider":"ZBB Energy Corporation","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":103,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/103/San\_Nicholas\_Island\_California\_military\_facilities.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/103/thumb\_San\_Nicholas\_Island\_California\_military\_facilities.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/103/partner\_San\_Nicholas\_Island\_California\_military\_facilities.png"}},"integrator\_company":"ONR","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.2464523,"longitude":-119.4991693,"master\_project\_id":null,"name":"San Nicolas Island Naval Facility - EnSync Energy (formerly ZBB)","om\_contractor":"","organization":null,"owner\_1":"U.S. Navy","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.marketwired.com/press-release/zbb-energy-corporation-ships-zbb-enersystem-to-us-navy-microgrid-project-nyse-mkt-zbb-1738827.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-18T21:24:12Z","updated\_at\_by\_admin":"2016-05-18T21:24:12Z","updated\_by":null,"updated\_by\_email":null,"utility":"SoCal Gas Company","utility\_type":"","vendor\_company":"ZBB Energy Corporation","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"St. Petersburg","commissioning\_on":"2022-04-01","companion":"","construction\_on":null,"contact\_city":"Menomonee Falls","contact\_country":"United States","contact\_email":"mmontague@ensync.com; info@lemaconstruction.com","contact\_info\_visible":false,"contact\_name":"Michelle Montague","contact\_phone":"262.253.9800","contact\_state":"WI","contact\_street\_address":"N93 W14475 Whitaker Way","contact\_zip":"53051","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-14T14:40:11Z","created\_by\_id":35,"debt\_investor":"","decommissioning\_on":null,"desc":"The ZBB EnerSystem includes the ZBB EnerSection power and energy control center, a ZBB EnerStore 50 kWh Zinc-bromide flow battery module and customer-provided lead acid batteries. The ZBB EnerSection provides a completely integrated energy management platform ready for interconnection to a range of configurable energy sources including PV and other power outputs. This system will be used for load management and peak shaving while providing continuous power and energy regulation supply while connected to the grid.\r\n\r\nhttp://lemaconstruction.com/portfolio/city-of-st-petersburg-solar-parks-project/\r\n","developer":"","electronics\_provider":"ZBB Energy Corporation","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":105,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/105/LEMA\_SolarParks.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/105/thumb\_LEMA\_SolarParks.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/105/partner\_LEMA\_SolarParks.jpg"}},"integrator\_company":"LEMA Construction","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":27.7730556,"longitude":-82.64,"master\_project\_id":null,"name":"St. Petersburg Solar Parks Project - EnSync Energy (formerly ZBB)","om\_contractor":"","organization":null,"owner\_1":"City of St. Petersburg","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.marketwired.com/press-release/zbb-energy-corporation-chosen-by-lema-construction-for-florida-solar-park-project-nyse-amex-zbb-1601576.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":25,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Florida","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-11T23:00:41Z","updated\_at\_by\_admin":"2016-05-11T23:00:41Z","updated\_by":null,"updated\_by\_email":null,"utility":"Progress Energy Florida","utility\_type":"","vendor\_company":"ZBB Energy Corporation","zip":""}},{"project":{"announcement\_on":"2022-11-24","approval\_status":1,"city":"Lyon Station","commissioning\_on":"2022-06-15","companion":"","construction\_on":"2022-04-11","contact\_city":"Lyon Station ","contact\_country":"United States","contact\_email":"jseasholtz@dekabatteries.com; jhoffman@dekabatteries.com","contact\_info\_visible":false,"contact\_name":"Jeff Seasholtz; Jason Hoffman","contact\_phone":"+1 610 682 6361","contact\_state":"Pennsylvania","contact\_street\_address":"102 Deka Road","contact\_zip":"19536","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":5087269.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-15T17:00:11Z","created\_by\_id":1,"debt\_investor":"American Recovery and Reinvestment Act of 2009 (ARRA) - East Penn Mfg.","decommissioning\_on":null,"desc":"The PJM (Pennsylvania-Jersey-Maryland Interconnection) Regulation Services project in Lyon Station, PA, was one of the projects selected and partly funded by the DOE under its American Recovery and Reinvestment Act of 2009 to demonstrate the ability of the Ecoult and Deka UltraBattery energy storage system to enhance the reliability and efficiency of the grid. \r\n\r\nIt provides 3 MW of continuous frequency regulation services to the grid of PJM Interconnection, the largest Regional Transmission Organization/Independent System Operator in the US. The new system is also used for peak demand management services to the local utility, Met-Ed (a First Energy Company).\r\n\r\nThe PJM demonstration project has been implemented in both a building and a containerized format to demonstrate the modularity and mobility of the storage solutions. This project will be a leading model in the implementation of energy storage technology enabling a smarter grid on a much a broader scale.\r\n\r\nThe equipment used for the PJM demonstration includes: \r\n• 15 kV switchgear \r\n• 69 kV bus and fused switch \r\n• 4 battery strings- one containerized string and three strings installed in building\r\n• 1,920 UltraBatteries that combine an asymmetric ultra-capacitor and a lead-acid battery in one unit \r\n• 1 power conversion system \r\n• 1 master programmable controller \r\n• 1 battery monitoring system\r\n(Source: http://energy.gov/sites/prod/files/East%20Penn.pdf)","developer":"East Penn Manufacturing Co.","electronics\_provider":"DynaPower","energy\_management\_software\_provider":"","funding\_amount\_1":2543523.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"US Department of Energy, Office of Electricity - American Recovery and Reinvestment Act of 2009 (ARRA)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":106,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/106/Ecoult\_PJM-Regulation-Services-Site-1024x541.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/106/thumb\_Ecoult\_PJM-Regulation-Services-Site-1024x541.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/106/partner\_Ecoult\_PJM-Regulation-Services-Site-1024x541.jpg"}},"integrator\_company":"Ecoult","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.4776121,"longitude":-75.7667739,"master\_project\_id":null,"name":"East Penn Manufacturing Co. Grid-Scale Energy Storage Demonstration","om\_contractor":"Ecoult","organization":"","owner\_1":"East Penn Manufacturing Co.","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.ecoult.com/case-studies/pjm-pa-usa-regulation-services/","primary\_reference1":"","projected\_lifetime":"5.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":3000,"size\_kwh":0.716666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":43.0,"state":"Pennsylvania","status":"Operational","street\_address":"102 Deka Road","systems\_integration":"","technology\_classification":"","technology\_type":"Hybrid Lead-acid Battery/Electro-chemical capacitor","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T17:27:30Z","updated\_at\_by\_admin":"2016-05-13T17:58:22Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Met-Ed","utility\_type":"Investor Owned","vendor\_company":"Ecoult","zip":"19536"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Orlando","commissioning\_on":"2022-02-17","companion":"","construction\_on":null,"contact\_city":"Orlando","contact\_country":"United States","contact\_email":"Dustin.Jackson@ucf.edu","contact\_info\_visible":false,"contact\_name":"Dustin Jackson","contact\_phone":"407-823-4040","contact\_state":"FL","contact\_street\_address":"4000 Central Florida Blvd.","contact\_zip":"32816","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-15T17:25:24Z","created\_by\_id":29,"debt\_investor":"","decommissioning\_on":null,"desc":"This 3.0 MG TES tank is designed to provide 26,200 ton-hrs of cooling capacity at a maximum chilled water flow rate of 8,300 gallons per minute. The TES system provides the facilities staff at UCF with the flexibility to operate their chilled water cooling system more cost effectively. This is accomplished by operating the chillers during off-peak periods instead of during the on-peak periods. By operating in this way, the peak electric load at the central plant is reduced by 3,000 kW and UCF will reduce their electric energy consumption as well as reduce energy costs. David Norvell estimates that the TES system will save them over $700,000 annually. In addition to the operational improvements, the tank appearance was enhanced using a combination faux brick and stucco column design so that the tank would blend in with the campus architecture.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":107,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/107/100\_0571\_Revised.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/107/thumb\_100\_0571\_Revised.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/107/partner\_100\_0571\_Revised.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":28.6004783,"longitude":-81.2013732,"master\_project\_id":null,"name":"University of Central Florida - DN Tanks","om\_contractor":"","organization":"","owner\_1":"The University of Central Florida","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.dntanks.com/projects/the-university-of-central-floridas-tes-tank/","primary\_reference1":"","projected\_lifetime":"50.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":3000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Florida","status":"Operational","street\_address":"4000 Central Florida Blvd.","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-11-29T17:24:22Z","updated\_at\_by\_admin":"2016-05-11T23:36:54Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Progress Energy Florida","utility\_type":"Investor Owned","vendor\_company":"DN Tanks","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Perrysburg","commissioning\_on":"2022-09-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"rbirt@pentanet.k12.oh.us","contact\_info\_visible":false,"contact\_name":"Rich Birt","contact\_phone":"(419) 666-1120","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-15T18:10:39Z","created\_by\_id":17,"debt\_investor":"","decommissioning\_on":null,"desc":"Penta Career Center serves and educates 2,000 students from five counties. The Center consists of a 500,000 square foot Main Building plus a 25,000 square foot Maintenance Building. The Main Building houses a career-technical high school facility (grades 10 through 12), serving sixteen (16) school districts in northwest Ohio. \r\n\r\nThe Maintenance Building includes a central services plant for chilled and hot water distribution with water cooled chillers, ice storage, high efficiency hot water boilers, and a central emergency generator. The HVAC systems were designed to reduce energy consumption and to allow the owner complete flexibility in scheduling the use of the building.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":111,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/111/PC120010.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/111/thumb\_PC120010.JPG"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/111/partner\_PC120010.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":41.5818,"longitude":-83.572054,"master\_project\_id":null,"name":"Penta Career Center Thermal Storage","om\_contractor":"","organization":"Penta Joint Vocational School District","owner\_1":"Penta Joint Vocational School District","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://schooldesigns.com/Project-Details.aspx?Project\_ID=3734","primary\_reference1":"","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":750,"size\_kwh":16.0,"size\_kwh\_hours":16,"size\_kwh\_minutes":0.0,"state":"Ohio","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-23T03:58:39Z","updated\_at\_by\_admin":"2016-05-11T23:45:15Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"Investor Owned","vendor\_company":"CALMAC","zip":"43551"}},{"project":{"announcement\_on":"2022-04-01","approval\_status":2,"city":"Malverne","commissioning\_on":"2022-02-01","companion":"","construction\_on":null,"contact\_city":"Alfred","contact\_country":"United States","contact\_email":"emersonm@epowerx.us; kmcgrath@maxwell.com","contact\_info\_visible":false,"contact\_name":"Marcus Emerson; Kim McGrath","contact\_phone":"(607) 382-2130","contact\_state":"New York","contact\_street\_address":"200 N. Main St.","contact\_zip":"14802","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-15T18:58:20Z","created\_by\_id":37,"debt\_investor":"","decommissioning\_on":null,"desc":"Installation is on Long Island Rail Road (LIRR) property near the Malverne station. The system performs regenerative braking, charging and discharging in 20 second time periods. NYSERDA is co-funding this project.","developer":"","electronics\_provider":"Various","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":112,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/112/LIRR2.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/112/thumb\_LIRR2.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/112/partner\_LIRR2.png"}},"integrator\_company":"Electrical Power worX Corp","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"NYISO","latitude":40.6754071,"longitude":-73.6692196,"master\_project\_id":"","name":"LIRR Malverne WESS: Maxwell Technologies","om\_contractor":"","organization":null,"owner\_1":"Electrical Power worX Corp","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.maxwell.com/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"New York State Energy Research and Development Authority","research\_institution\_link":"http://www.nyserda.org","service\_use\_case\_1":"Transportation Services","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.0166666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":1.0,"state":"New York","status":"Operational","street\_address":"280 Hempstead Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical Capacitor","technology\_type\_l1":"Electro-chemical Capacitor","technology\_type\_l2":"Electro-chemical Capacitor","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-12T00:00:20Z","updated\_at\_by\_admin":"2016-05-12T00:00:20Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Maxwell Technologies","zip":"11565"}},{"project":{"announcement\_on":"2022-07-07","approval\_status":2,"city":"Falköping","commissioning\_on":"2022-12-07","companion":"Wind farm","construction\_on":"2022-08-11","contact\_city":"Falbygden","contact\_country":"Sweden","contact\_email":"lars.ohlsson@feab.nu","contact\_info\_visible":false,"contact\_name":"Lars Ohlsson","contact\_phone":"+46 515777500","contact\_state":"Falköping","contact\_street\_address":"Åselegatan","contact\_zip":"52121","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Sweden","created\_at":"2012-06-18T09:06:02Z","created\_by\_id":38,"debt\_investor":"","decommissioning\_on":null,"desc":"ABB has delivered an order to the Swedish utility Falbygdens Energi (a subsidiary of Göteborgs Energi) that supplies an innovative dynamic energy storage solution for its power distribution network.\r\n\r\nThe storage solution is based on a new technology that uses a battery storage device to provide stability to the grid. The equipment will be installed as part of an existing substation in the city of Falköping and will enable the storage of locally produced energy from wind turbines. Storage capacity will be 75 kilowatts (kW) in cycles of up to 60 minutes.\r\n\r\nThis will help to balance peak loads during the day and enhance grid stability. It is the first such low-voltage dynamic storage solution of its kind in the country, and is part of a partnership agreement between the two companies to collaborate on developing technologies to facilitate the integration of renewable energies and the evolution of smarter grids.\r\n\r\n“We have a significant proportion of wind power connected to the grid in this region and expect this to grow further,\"\" said Lars Ohlsson, CEO of Falbygdens Energi. \"\"This innovative storage solution will make it possible to store wind energy during the night when demand is low and distribute it to users during the day, allowing us to use this clean renewable energy more efficiently and minimizing the need for fossil fuel-based electricity generation. As part of this pilot, we will also study the feasibility of the stored energy to be deployed as auxiliary power for charging of electrical vehicles.","developer":"ABB AB","electronics\_provider":"ABB AB","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":113,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/113/IMG\_0743.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/113/thumb\_IMG\_0743.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/113/partner\_IMG\_0743.jpg"}},"integrator\_company":"ABB AB","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":58.1631846,"longitude":13.5620132,"master\_project\_id":null,"name":"Falköping Substation Smart Grid - ABB","om\_contractor":"Falbygden Energi","organization":null,"owner\_1":"Falbygden Energi","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Operating as expected since day 1","primary\_reference":"http://www.abb.com/cawp/seitp202/9a7b804003cd0b82c12578bc0029037a.aspx","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"ABB AB","research\_institution\_link":"","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Distribution upgrade due to wind","service\_use\_case\_3":"Electric Bill Management with Renewables","service\_use\_case\_4":"Electric Supply Capacity","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":75,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Västra götaland","status":"Operational","street\_address":"Åselegatan","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-12T00:24:46Z","updated\_at\_by\_admin":"2016-05-12T00:24:46Z","updated\_by":null,"updated\_by\_email":null,"utility":"Falbygden Energi ","utility\_type":"Public Owned","vendor\_company":"ABB AB","zip":"521 21"}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Monroe","commissioning\_on":"2022-02-22","companion":"500 kW Solar Array","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"asgeirssonh@dteenergy.com; Kimberly.Nuhfer@netl.doe.gov","contact\_info\_visible":false,"contact\_name":"Haukur (Hawk) Asgeirsson – Principal Investigator; Kim Nuhfer","contact\_phone":"313-235-9371; 304-285-6544 ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":10877258.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-19T19:08:26Z","created\_by\_id":20,"debt\_investor":"","decommissioning\_on":null,"desc":"This project is designed to demonstrate a proof of concept for aggregated Community Energy Storage Devices in a utility territory. The project is comprised of the following major research objectives: 1) Installation of 20 Community Energy Storage (CES) devices across a utility territory; 2) The installation and use of centralized communication across the service territory; 3) The integration of a renewable resource with energy storage; 4) The creation of algorithms for dispatching CES devices for peak shaving and demand response; 5) The integration and testing of secondary-use electric vehicle batteries; and 6) The use of Energy storage devices to provide ancillary services to the power grid.\r\n\r\nIn 2011, with funds from the American Recovery and Reinvestment Act, Detroit Edison installed a 500-kW solar array at the main campus of Monroe County Community College. Attached to the solar array is a 500-kW battery that allows for the solar array's power to discharge more steadily throughout the day.","developer":"DTE Energy","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":4995271.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 - RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"US Department of Energy, Office of Electricity - ARRA Grant","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":114,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/114/MCCC\_Building\_H.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/114/thumb\_MCCC\_Building\_H.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/114/partner\_MCCC\_Building\_H.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"MISO","latitude":41.916448,"longitude":-83.466152,"master\_project\_id":null,"name":"Monroe Community College CES Unit for Grid Support - DTE Energy","om\_contractor":"","organization":"DTE Energy; National Energy Technology Laboratory ","owner\_1":"DTE Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"https://www.smartgrid.gov/files/OE0000229\_DTE\_FinalRep\_2016\_03\_16.pdf","primary\_reference":"http://energy.gov/sites/prod/files/DTE.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"This system will be used to analyze the performance of CES devices and control systems under in-service operating conditions to identify gaps and facilitate how the devices can be standardized for use across the US.","research\_institution":"National Energy Technology Laboratory","research\_institution\_link":"http://www.netl.doe.gov/","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":500,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Michigan","status":"Operational","street\_address":"1555 S Raisinville Rd","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-31T20:05:46Z","updated\_at\_by\_admin":"2016-06-14T21:44:55Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Detroit Edison Energy","utility\_type":"Investor Owned","vendor\_company":"A123","zip":"48161"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Metlakatla","commissioning\_on":"2022-02-03","companion":"","construction\_on":null,"contact\_city":"Metlakatla","contact\_country":"United States","contact\_email":"cpaul@ptialaska.net","contact\_info\_visible":false,"contact\_name":"Paul Bryant","contact\_phone":"9078864451","contact\_state":"Alaska","contact\_street\_address":"P.O. Box 359","contact\_zip":"99926","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":2319978.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-22T23:09:44Z","created\_by\_id":20,"debt\_investor":"","decommissioning\_on":null,"desc":"Metlakatla Power and Light (MP&L) has a BESS installation consisting of Exide (GNB Industrial Power) VRLA cells, providing rapid spinning reserve, frequency control, and better power quality. Beginning operation in 1997, the MP&L BESS has a 1 MW peak power output, and 1.4 MWh energy capacity. It is capable of supporting continuous loads of 800 kilovolt amperes (kVA), pulse loads up to 1200 kVA, and consists of 378 Absolyte VRLA 100A75 modules. Nearly 5 MW of hydroelectric generation capacity provides almost all of MP&L’s power, with a 3.3 MW diesel generation system relegated to reserve duty. MP&L’s two hydroelectric plants, Purple Lake and Chester Lake, have reservoir storage capacity, though the hydro generators were too slow to respond to sudden load fluctuations. At the time of the BESS’s initial operations, the MP&L peak load was approximately 4 MW. A lumber mill in Metlakatla (since closed down) caused large, sudden power spikes on the community’s islanded power system, and the BESS was installed to provide fast response for the mill’s rapid load changes.\r\n\r\nThe MP&L BESS is housed in a purpose-built 40-foot by 70-foot steel butler building that sits on a cement pad. Installation cost of the 1 MW / 1.4 MWh Exide Metlakatla BESS was $1.6 million in 1996 dollars (estimated cost in 2009 dollars: $2.2 million). The battery system became operational in February 1997. It operated continuously for 11.5 years until September 2008, when the battery was replaced with a new VRLA product. The VRLA battery exceeded its 8-year design life by over 3 years. The BESS is estimated to have saved MP&L over $6.5 million over its life in reduced fuel consumption and maintenance, in addition to reduced greenhouse emissions. A new battery was installed with the support of the Alaska Commerce, Community, and Economic Development Agency, so the BESS will continue to provide benefits to the community for many years to come. Spent battery cells will be sent to a lead-acid battery recycling plant in Quebec.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":117,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/117/Metakatla.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/117/thumb\_Metakatla.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/117/partner\_Metakatla.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":55.0845439,"longitude":-131.582469,"master\_project\_id":null,"name":"Metlakatla BESS","om\_contractor":"","organization":null,"owner\_1":"Metlakatla Light & Power","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"The BESS is estimated to have saved MP&L over $6.5 million over its life in reduced fuel consumption and maintenance, in addition to reduced greenhouse emissions. Overall DC-AC electric efficiency: ~64%(incl. auxiliary and converter losses)","primary\_reference":"http://www.irena.org/documentdownloads/events/VanuatuJuly2012/7\_Srinivas\_Bharadwaj.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1000,"size\_kwh":1.4,"size\_kwh\_hours":1,"size\_kwh\_minutes":24.0,"state":"Alaska","status":"Operational","street\_address":"3.5 Mile Airport Rd.","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-29T02:27:18Z","updated\_at\_by\_admin":"2016-06-29T02:27:18Z","updated\_by":null,"updated\_by\_email":null,"utility":"Metlakatla Power & Light","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Exide","zip":"99926"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Pomona","commissioning\_on":"2022-01-01","companion":"Two 60 kW Amonix Compact Photovoltaic modules ","construction\_on":"2022-07-01","contact\_city":"","contact\_country":"United States","contact\_email":"info@greensmithenergy.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-23T00:25:28Z","created\_by\_id":20,"debt\_investor":"","decommissioning\_on":null,"desc":"The Greensmith Energy storage unit is connected to two 60 kW Amonix Compact Photovoltaic modules located on the Cal Poly Pomona university campus. Amonix signed a one-year lease-to-buy contract with Greensmith Energy, allowing it the freedom to potentially move the Greensmith DESS to different project sites. The Greensmith DESS was installed in July 2011","developer":"","electronics\_provider":"Greensmith Energy","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":118,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/118/Greensmith.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/118/thumb\_Greensmith.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/118/partner\_Greensmith.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.0569172,"longitude":-117.8217494,"master\_project\_id":null,"name":"Cal Poly - Amonix / Greensmith Energy","om\_contractor":"","organization":"","owner\_1":"Amonix","owner\_2":"","owner\_type":"","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://gigaom.com/2012/02/05/how-big-data-and-the-cloud-can-manage-grid-batteries/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":75,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"Cal Poly","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-12-22T18:51:06Z","updated\_at\_by\_admin":"2016-05-18T23:18:16Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Greensmith Energy","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Joso City","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Japan","contact\_email":"hatta@ngk.co.jp","contact\_info\_visible":false,"contact\_name":"Tetsuya Hatta","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2012-06-25T14:25:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-09-21","desc":"NGK Insulators announced the cause of the fire that occurred on September 21, 2022 involving the NAS (sodium-sulfur) batteries for electricity storage that it has manufactured. NGK also announced safety enhancement measures and the resumption of factory operations.\r\n\r\nNGK has worked to find the cause of the incident and implement countermeasures since it happened. Recently, a third-party investigation committee, with Japan's Hazardous Materials Safety Techniques Association serving as secretariat, reviewed the cause of the fire and containment measures, and judged that the details regarding both were reasonable and appropriate.\r\n\r\nBased on the results of this investigation, NGK decided to voluntarily implement safety enhancement measures, including a monitoring system, under the guidance of the Fire and Disaster Management Agency.\r\n\r\nBy implementing these safety enhancement measures, customers can be assured of their NAS batteries because the batteries now have more safety features than previous ones.\r\n\r\nhttp://www.ngk.co.jp/english/announce/111031\_nas.html","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":119,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/119/tsukubasei.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/119/thumb\_tsukubasei.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/119/partner\_tsukubasei.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.0906905,"longitude":139.9537511,"master\_project\_id":null,"name":"Tsukuba Plant Mitsubishi Materials Corporation - NGK","om\_contractor":"","organization":null,"owner\_1":"Tokyo Electric Power Company (TEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"http://www.ngk.co.jp/english/news/2012/0607.html","primary\_reference":"http://www.ngk.co.jp/english/news/2012/0607.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Ibaraki","status":"De-Commissioned","street\_address":"1511 Furumagi","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-20T20:19:40Z","updated\_at\_by\_admin":"2016-05-20T20:19:40Z","updated\_by":null,"updated\_by\_email":null,"utility":"Tokyo Electric Power Company (TEPCO)","utility\_type":"Public Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Ohito","commissioning\_on":"2022-03-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Japan","contact\_email":"hatta@ngk.co.jp","contact\_info\_visible":false,"contact\_name":"Tetsuya Hatta (Engineering Manager)","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2012-06-25T15:20:07Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-01-01","desc":"System ran from March 1999 to 2002 but was then successively dismantled. The battery cells were reused in 3 other systems.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":120,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/120/Ohito\_Substation.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/120/thumb\_Ohito\_Substation.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/120/partner\_Ohito\_Substation.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.9945033,"longitude":138.9385986,"master\_project\_id":null,"name":"Ohito Substation - NGK","om\_contractor":"","organization":null,"owner\_1":"GNB","owner\_2":"Tokyo Electric Power Company (TEPCO)","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://brennstoffzellen.pitcom.net/upload/dokument95.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":6000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Shizuoka","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-20T20:22:25Z","updated\_at\_by\_admin":"2016-05-20T20:22:25Z","updated\_by":null,"updated\_by\_email":null,"utility":"Tokyo Electric Power Company (TEPCO)","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"San Diego","commissioning\_on":"2022-06-01","companion":"Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"TBialek@semprautilities.com","contact\_info\_visible":false,"contact\_name":"Thomas Bialek","contact\_phone":"858-654-8259","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":114000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-25T21:38:11Z","created\_by\_id":20,"debt\_investor":"","decommissioning\_on":null,"desc":"As part of an EPRI collaborative research and development (R&D) project to evaluate the performance and reliability of a variety of grid-connected Li-ion battery technologies, San Diego Gas & Electric (SDG&E) installed a 50 kW / 82 kWh Greensmith Energy lithium-iron-phosphate distributed energy storage system (DESS) at the utility’s test facility. For this overarching collaborative demonstration, EPRI’s Energy Storage Program (P94) and Distributed Renewables Program (P174) are working in partnership with select utility members to investigate PV-battery integration capabilities. Serving as a “host” utility to EPRI’s supplemental demonstration initiative, SDG&E installed a Greensmith DESS in a grid-connected configuration in June 2011 and has been conducting operating evaluations of the unit over the past 6 months.\r\n\r\nTesting and operating evaluation conducted by SDG&E encompasses exercising the DESS’s various modes of operation, which include: \r\n- Constant power charge/discharge schedule;\r\n- Peak shaving; and\r\n- PV smoothing.\r\n","developer":"","electronics\_provider":"Greensmith Energy","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":130,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/130/Century\_Park-53.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/130/thumb\_Century\_Park-53.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/130/partner\_Century\_Park-53.jpg"}},"integrator\_company":"SDG&E","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.8234495,"longitude":-117.1430605,"master\_project\_id":null,"name":"SDG&E Century Park DESS - Greensmith Energy","om\_contractor":"","organization":"","owner\_1":"Electric Power Research Institute (EPRI)","owner\_2":"","owner\_type":"","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"• System roundtrip AC efficiency: ~85% • PCS efficiency: ~95%","primary\_reference":"http://energy.gov/sites/prod/files/2014/06/f17/EACJune2014-4Bialek.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"SDG&E has been testing the battery unit since June and recently completed its 6-month evaluation period. It has successfully tested and demonstrated nearly all of the battery’s modes, with the exception of determining whether the unit can receive commands remotely through a Modbus connection. Note: Because no working PV system existed on-site, testing of the DESS’s PV ramp rate control mode of operation was conducted using virtual PV system data.","research\_institution":"EPRI","research\_institution\_link":"","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":50,"size\_kwh":1.66666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":40.0,"state":"California","status":"Operational","street\_address":"8330 Century Park Ct","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-12-22T18:51:46Z","updated\_at\_by\_admin":"2016-05-23T21:50:51Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Greensmith Energy","zip":"92123"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Knoxville","commissioning\_on":"2022-02-01","companion":"Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"mhuque@epri.com","contact\_info\_visible":false,"contact\_name":"Aminul Huque","contact\_phone":"865-218-8051","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-25T23:00:39Z","created\_by\_id":20,"debt\_investor":"","decommissioning\_on":null,"desc":"The battery unit is one of several that are being tested by EPRI at its Power Delivery & Utilization (PDU) Lab in Knoxville, TN. The system, along with the other Distributed Energy Storage Systems (DESS's), was installed in early/mid 2011 and has since been operating under various stages of testing against EPRI’s DESS test protocol. 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The system, along with the other Distributed Energy Storage Systems (DESS's), was installed in early/mid 2011 and has since been operating under various stages of testing against EPRI’s DESS test protocol. 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The system, along with the other Distributed Energy Storage Systems (DESS's), was installed in early/mid 2011 and has since been operating under various stages of testing against EPRI’s DESS test protocol. 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The system, along with the other Distributed Energy Storage Systems (DESS's), was installed in early/mid 2011 and has since been operating under various stages of testing against EPRI’s DESS test protocol. 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The system, along with the other Distributed Energy Storage Systems (DESS's), was installed in early/mid 2011 and has since been operating under various stages of testing against EPRI’s DESS test protocol. ","developer":"","electronics\_provider":"Greensmith Energy","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"EPRI - EPRI supplemenal project funding","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":135,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/135/epri\_knoxville.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/135/thumb\_epri\_knoxville.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/135/partner\_epri\_knoxville.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.9220262,"longitude":-84.1421238,"master\_project\_id":null,"name":"EPRI Energy Storage System - Greensmith Energy / Boston Power ","om\_contractor":"","organization":"","owner\_1":"Electric Power Research Institute (EPRI)","owner\_2":"","owner\_type":"","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://mydocs.epri.com/docs/publicmeetingmaterials/1104/4ANZGWRJTYQ/E236208\_14.\_B.Kaun\_Energy\_Storage\_Testing\_and\_Demos.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"EPRI","research\_institution\_link":"www.epri.com","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":25,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Tennessee","status":"De-Commissioned","street\_address":"942 Corridor Park Blvd.","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-12-22T18:52:45Z","updated\_at\_by\_admin":"2016-05-23T22:24:29Z","updated\_by":null,"updated\_by\_email":null,"utility":"Knoxville Utilities Board","utility\_type":"Public Owned","vendor\_company":"Boston Power","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"McIntosh","commissioning\_on":"2022-01-01","companion":"CAES Generation plant","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"rschaink@epri.com","contact\_info\_visible":false,"contact\_name":"Robert Schainker","contact\_phone":"650-855-2104","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":65000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-28T20:55:03Z","created\_by\_id":20,"debt\_investor":"","decommissioning\_on":null,"desc":"The 2nd commercial CAES plant, in operation since 1991. Like the Huntorf plant, the McIntosh Unit 1 facility stores compressed air in a solution-mined salt cavern. The cavern is 220 ft in diameter and 1,000 ft tall, for a total volume of 10 million cubic feet. At full charge, the cavern is pressurized to 1,100 psi, and it is discharged down to 650 psi. During discharge, 340 pounds of air flow out of the cavern each second. The cavern can discharge for 26 hours. The plant also utilizes nuclear-sourced night-time power for compression and then produces peak power during the day by releasing the compressed air into a 110-MW gas-fired combustion turbine built by Dresser Rand. The turbine unit also makes use of an air-to-air heat exchanger to preheat air from the cavern with waste heat from the turbine. The waste heat recovery system reduces fuel usage by roughly 25%. \r\n\r\nCompared to conventional combustion turbines, the CAES-fed system can start up in 15 minutes rather than 30 minutes, uses only 30% to 40% of the natural gas, and operates efficiently down to low loads (about 25% of full load). The key function of the facility is for peak shaving.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":136,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/136/McIntoshCAES.PNG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/136/thumb\_McIntoshCAES.PNG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/136/partner\_McIntoshCAES.PNG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":31.2572207,"longitude":-88.0280479,"master\_project\_id":null,"name":"McIntosh CAES Plant","om\_contractor":"","organization":"","owner\_1":"PowerSouth Utility Cooperative","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Burns 30-40% less natural gas than conventional power plants.","primary\_reference":"http://www.powersouth.com/mcintosh\_power\_plant/compressed\_air\_energy","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"Electric Power Research Institute (EPRI)","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":110000,"size\_kwh":26.0,"size\_kwh\_hours":26,"size\_kwh\_minutes":0.0,"state":"Alabama","status":"Operational","street\_address":"Jefferson Davis Highway and Allen Barnes Rd.","systems\_integration":null,"technology\_classification":null,"technology\_type":"In-ground Natural Gas Combustion Compressed Air","technology\_type\_l1":"In-ground Compressed Air Storage","technology\_type\_l2":"Compressed Air Storage","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-10-25T06:06:00Z","updated\_at\_by\_admin":"2016-05-23T22:26:10Z","updated\_by":null,"updated\_by\_email":null,"utility":"PowerSouth","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Dresser-Rand","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Maalaea","commissioning\_on":"2022-07-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"amanda.brown@younicos.com","contact\_info\_visible":false,"contact\_name":"Amanda Brown","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-29T22:35:14Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"On the island of Maui, a 10 MW / 45 minute Xtreme Power DPR was integrated with the 21 MW Kaheawa Wind Power II project, built by First Wind, to provide utility-scale power storage and management. The DPR is intended to address the issue of curtailment as renewable energy penetration rates increase on Maui; in addition, it will provide ramp control, responsive reserves, frequency regulation, and automatic generation control (AGC) for the Maui Electric Co. (MECO).\r\n\r\nIn April 2014, Younicos acquired the assets of the former Xtreme Power.","developer":"","electronics\_provider":"Maui Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":137,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/137/00\_Mauai\_Slider\_0.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/137/thumb\_00\_Mauai\_Slider\_0.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/137/partner\_00\_Mauai\_Slider\_0.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":20.7963889,"longitude":-156.5141667,"master\_project\_id":null,"name":"Kaheawa Wind Power Project II - Younicos","om\_contractor":"","organization":"","owner\_1":"First Wind LLC","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.younicos.com/case-studies/maui-hawaii/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Ramping ","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10000,"size\_kwh":0.75,"size\_kwh\_hours":0,"size\_kwh\_minutes":45.0,"state":"Hawaii","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-27T23:57:15Z","updated\_at\_by\_admin":"2016-05-24T18:38:27Z","updated\_by":null,"updated\_by\_email":null,"utility":"Maui Electric Company (MECO)","utility\_type":"Investor Owned","vendor\_company":"Xtreme Power","zip":""}},{"project":{"announcement\_on":"2022-06-20","approval\_status":1,"city":"Redding","commissioning\_on":"2021-12-31","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3236","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-29T23:07:52Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Ice Energy and REU will collaborate on the second phase of their Peak Capacity, Demand Response, and HVAC Replacement Program. The program to install Ice Bear® units within the northern California territory aims to reduce peak electricity load demand by up to 6 MW over five years. REU expects to have the thermal energy storage program completed in 2017. Skyway Machine, a local Redding manufacturing company, will provide final assembly of the new Ice Bear units.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":138,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/138/Redding\_Ice\_Energy\_Phase\_2.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/138/thumb\_Redding\_Ice\_Energy\_Phase\_2.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/138/partner\_Redding\_Ice\_Energy\_Phase\_2.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":40.5865396,"longitude":-122.3916754,"master\_project\_id":null,"name":"Redding Electric Utilities (Phase 2) - Ice Energy ","om\_contractor":"","organization":"Ice Energy","owner\_1":"Various Owners","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.themcdonnellgroup.com/client-press-releases/redding-council-vote-approves-6-mw-deal-with-multi-tiered-economic-upswing.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Transmission Congestion Relief","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":6000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-01-22T07:43:50Z","updated\_at\_by\_admin":"2016-05-24T19:07:00Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Redding Electric Utility (REU)","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":2,"city":"San Joaquin County","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"mjml@pge.com; CAES@pge.com; Kimberly.Nuhfer@netl.doe.gov","contact\_info\_visible":false,"contact\_name":"Mike Medeiros; PG&E CAES Team; Kim Nuhfer","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":355000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-29T23:19:39Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"A 300 MW A-CAES demo plant will use an underground storage container (depleted gas reservoir), and next-generation turbomachinery. The project has 3 phases: Phase 1 - preliminary engineering, geologic reservoir engineering, econmoic analyses, and regulatory permitting; Phase 2 - Construction and plant commissioning; Phase 3: Plant operation and plant performance monitoring. Ph 2 of the project will go ahead if the Ph1 results show PG&E and California regulatory management that the project is cost effective. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":25000000.0,"funding\_amount\_2":25000000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"State/Provincial/Regional Commercialization Incentive\*","funding\_source\_3":"","funding\_source\_details\_1":"US Department of Energy, Office of Electricity - DOE Grant Program","funding\_source\_details\_2":"CPUC, CEC, EPRI - CPUC/EPRI/CEC Match Funding","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":139,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/139/pge\_caes.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/139/thumb\_pge\_caes.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/139/partner\_pge\_caes.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.9175935,"longitude":-121.1710389,"master\_project\_id":null,"name":"PG&E Advanced Underground Compressed Air Energy Storage (CAES)","om\_contractor":"","organization":null,"owner\_1":"Pacific Gas and Electric Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.pge.com/en/about/environment/pge/cleanenergy/caes/index.page","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":300000,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"In-ground Compressed Air Storage","technology\_type\_l1":"In-ground Compressed Air Storage","technology\_type\_l2":"Compressed Air Storage","technology\_type\_l3":"Electro-mechanical","updated\_at":"2016-06-14T21:53:36Z","updated\_at\_by\_admin":"2016-06-14T21:53:36Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric Company","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-06-01","approval\_status":2,"city":"Queens","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"rschaink@epri.com","contact\_info\_visible":false,"contact\_name":"Robert Schainker","contact\_phone":"650-855-2104","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-29T23:34:49Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"9-MW plant will use steel piping to hold pressurized air instead of geologic based air store. Preliminary plant design complete; NYSERDA funding expected in July 2012; Vendors, utility sponsor, and site location determined. Groundbreaking slated for 2013 to 2014 time frame.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":140,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/140/caes10.png","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/140/thumb\_caes10.png"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/140/partner\_caes10.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.7282239,"longitude":-73.7948516,"master\_project\_id":null,"name":"Next Gen CAES using Steel Piping - NYPA","om\_contractor":"","organization":null,"owner\_1":"New York Power Authority","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.publicpower.org/files/NationalConference/Kou.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":9000,"size\_kwh":4.5,"size\_kwh\_hours":4,"size\_kwh\_minutes":30.0,"state":"New York","status":"Announced","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Modular Compressed Air Storage","technology\_type\_l1":"Modular Compressed Air Storage","technology\_type\_l2":"Compressed Air Storage","technology\_type\_l3":"Electro-mechanical","updated\_at":"2016-05-24T20:42:43Z","updated\_at\_by\_admin":"2016-05-24T20:42:43Z","updated\_by":null,"updated\_by\_email":null,"utility":"New York Power Authority (NYPA)","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-03-01","approval\_status":2,"city":"Fremont","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"Fremont","contact\_country":"United States","contact\_email":"ed@amberkinetics.com; mstout@amberkinetics.com","contact\_info\_visible":false,"contact\_name":"Ed Chiao; Mark Stout","contact\_phone":"408-206-0834","contact\_state":"CA","contact\_street\_address":"47338 Fremont Blvd","contact\_zip":"94538","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":10003015.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-06-29T23:42:57Z","created\_by\_id":20,"debt\_investor":"","decommissioning\_on":"2021-12-30","desc":"Amber Kinetics is developing a flywheel system from sub-scale research prototype to full-scale mechanical flywheel battery and will conduct both a commercial-scale and a utility-scale demonstration. The goal is to deliver a cost-effective prototype flywheel system that can be grid connected and electrically charged and discharged. The system will have built-in sensing components that can determine frequency and voltage characteristics of the grid and can override the grid signal to manage the amount of electricity discharged. \r\n\r\nThe flywheel stores energy in a spinning rotor that is connected to an electric motor that converts electrical energy into mechanical energy. To recover the energy the motor is electrically reversed and used as a generator to slow down the flywheel converting the mechanical energy back into electrical energy. Amber Kinetics will improve the traditional flywheel system by engineering breakthroughs in three areas, resulting in higher efficiency and radically reduced cost: magnetic bearings, low-cost rotor, and high-efficiency motor generator. This technology can also be used to optimize existing infrastructure.\r\n\r\nThe 48-month project contains 3 phases. \r\nPhase 1: engineering of a 10 kW / 10 kWh prototype system, includes demonstration of flywheel system, rotor performance, and demonstration of low-loss bearings and motor (Completed)\r\nPhase 2: commercial-scale prototype development, includes 100 kWh flywheel energy storage systems, with focus on scale up and cost reductions\r\nPhase 3: grid-connected demonstration, includes MWh size grid-connected demonstration of system performance and cycle life.\r\n\r\nInterim report available at: http://www.smartgrid.gov/sites/default/files/pdfs/tpr\_final\_phase1\_amber\_kinetics.pdf","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":3694660.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Projects","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":141,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/141/amber.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/141/thumb\_amber.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/141/partner\_amber.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.5482697,"longitude":-121.9885719,"master\_project\_id":null,"name":"Amber Kinetics Flywheel Energy Storage Demonstration","om\_contractor":"","organization":null,"owner\_1":"Amber Kinetics","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Full performance evaluation of phase 1 at http://www.smartgrid.gov/sites/default/files/pdfs/tpr\_final\_phase1\_amber\_kinetics.pdf","primary\_reference":"http://www.smartgrid.gov/project/amber\_kinetics\_inc\_flywheel\_energy\_storage\_demonstration","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"Evaluate flywheel performance, scalability, and grid application","research\_institution":"DOE, LLNL, CEC, AFS Trinity, Stanford","research\_institution\_link":"http://www.smartgrid.gov/recovery\_act/program\_impacts/energy\_storage\_technology\_performance\_reports","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"De-Commissioned","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2016-05-24T20:52:12Z","updated\_at\_by\_admin":"2016-05-24T20:52:12Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Amber Kinetics","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Woodside","commissioning\_on":"2022-07-01","companion":"Solar PV","construction\_on":null,"contact\_city":"Brooklyn","contact\_country":"United States","contact\_email":"vic@greenchargenet.com","contact\_info\_visible":false,"contact\_name":"Vic Shao","contact\_phone":"650-450-0076","contact\_state":"NY","contact\_street\_address":"20 Jay Street, Suite 1020","contact\_zip":"11201","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-07-10T15:29:43Z","created\_by\_id":46,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks' GreenStation demonstration consists of a Lithium Ion storage unit, a system controller, two Level 2 electric vehicle chargers, and a rooftop PV array. Primary benefits include peak shaving and demand charge avoidance. The system is tied to a network operations center where loads are monitored and controlled in real-time. The project is supported by a DOE Smart Grid Demonstration Grant. ","developer":"Engie Storage (formerly Green Charge Networks)","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":142,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/142/GCN\_SSGU1.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/142/thumb\_GCN\_SSGU1.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/142/partner\_GCN\_SSGU1.JPG"}},"integrator\_company":"Engie Storage (formerly Green Charge Networks)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.754233,"longitude":-73.900612,"master\_project\_id":null,"name":"7-Eleven Distributed Energy Storage System (DESS) - Engie Storage (formerly Green Charge Networks)","om\_contractor":"","organization":"Engie Storage (formerly Green Charge Networks)","owner\_1":"Engie Storage (formerly Green Charge Networks)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.greentechmedia.com/articles/read/green-charge-networks-and-new-york-citys-corner-store-smart-grid","primary\_reference1":"","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Electric Supply Capacity","service\_use\_case\_5":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":100,"size\_kwh":0.966666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":58.0,"state":"New York","status":"Operational","street\_address":"61-19 Northern Boulevard","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-17T22:57:06Z","updated\_at\_by\_admin":"2016-05-24T22:11:36Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Consolidated Edison Company of New York (Con Edison)","utility\_type":"Investor Owned","vendor\_company":"Saft America","zip":"11377"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Queens","commissioning\_on":"2022-01-02","companion":"Solar PV","construction\_on":null,"contact\_city":"Brooklyn","contact\_country":"United States","contact\_email":"vic@greenchargenet.com","contact\_info\_visible":false,"contact\_name":"Vic Shao","contact\_phone":"650-450-0076","contact\_state":"NY","contact\_street\_address":"20 Jay Street, Suite 1020","contact\_zip":"11201","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":250000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2012-07-12T15:45:38Z","created\_by\_id":46,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks' GreenStation demonstration consists of a Lithium Ion storage unit, a system controller, twenty-one Level 2 electric vehicle chargers, and a rooftop PV array. The GreenStation ensures that Avis has enough capacity to charge 21 EVs simultaneously, performs peak mitigation in the main building, and avoids utility service upgrades. The system is tied to a network operations center where loads are monitored and controlled in real time. The project is supported by a DOE Smart Grid Demonstration Grant.","developer":"Engie Storage (formerly Green Charge Networks)","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":143,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/143/GCN\_SSGU2\_Avis.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/143/thumb\_GCN\_SSGU2\_Avis.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/143/partner\_GCN\_SSGU2\_Avis.jpg"}},"integrator\_company":"Engie Storage (formerly Green Charge Networks)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.7758517,"longitude":-73.8839579,"master\_project\_id":"1090","name":"La Guardia Airport Avis Car Rental - Engie Storage (formerly Green Charge Networks)","om\_contractor":"","organization":"Engie Storage (formerly Green Charge Networks)","owner\_1":"Engie Storage (formerly Green Charge Networks)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.greentechmedia.com/articles/read/green-charge-networks-and-new-york-citys-corner-store-smart-grid","primary\_reference1":"","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Bill Management with Renewables","service\_use\_case\_4":"Electric Energy Time Shift","service\_use\_case\_5":"Electric Supply Capacity","service\_use\_case\_6":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":100,"size\_kwh":1.6,"size\_kwh\_hours":1,"size\_kwh\_minutes":36.0,"state":"New York","status":"Operational","street\_address":"25 Bowery Bay Boulevard","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-17T23:00:34Z","updated\_at\_by\_admin":"2016-05-25T17:54:14Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"New York Power Authority (NYPA)","utility\_type":"Investor Owned","vendor\_company":"Saft America","zip":"11371"}},{"project":{"announcement\_on":"2022-08-30","approval\_status":2,"city":"Jinzhou","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"China","contact\_email":"jun.li@cnesa.org","contact\_info\_visible":false,"contact\_name":"Jun Li","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2012-07-17T08:59:24Z","created\_by\_id":39,"debt\_investor":"","decommissioning\_on":null,"desc":"This project is State Power's first supply-side energy storage project, incorporating 49.5 MW installed wind capacity and a 5 MW lithium-ion battery system. The energy storage system improves the quality of wind power electricity, reduces wind curtailment, and allows the electric power grid to accept a greater amount of wind power. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":145,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.100187,"longitude":121.719238,"master\_project\_id":null,"name":"Guodian Supply-Side Energy Storage Project","om\_contractor":"","organization":null,"owner\_1":"Guodian Power Development Co., LTD.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.khjt.com.cn/en/news/details.aspx?id=599","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":5000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Liaoning","status":"Contracted","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-25T00:25:16Z","updated\_at\_by\_admin":"2016-05-25T00:25:16Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Seabrook","commissioning\_on":"2022-09-11","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"rbrody@sustainx.com","contact\_info\_visible":false,"contact\_name":"Richard Brody","contact\_phone":"(work) (603) 601-7826 / (cell) (860) 792-1167","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-07-18T16:54:07Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Project appears to be decommissioned. 11.30.17\r\n\r\nSustainX is constructing a 1.5MW pilot system in Seabrook, New Hampshire to demonstrate their modular isothermal compressed air energy storage system (ICAES). This second generation ICAES system is scheduled for completion in 2013, with the third generation field-deployed ICAES system ready for operation by 2014. The current schedule would have SustainX's isothermal system ready for commercial production in 2015. \r\n\r\nSustainX’s ICAES system captures the heat from compression in water and stores the captured heat until it is needed again for expansion. Storing the captured heat eliminates the need for a gas combustion turbine and improves efficiency. SustainX achieves isothermal cycling by combining patented innovations with a design control on mature industrial components and principles. \r\nThe system is designed for a 20-year lifetime. It achieves full power output from start-up in less than one minute, and it does not use toxic chemicals.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":5396023.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":146,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/146/SustainX\_System.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/146/thumb\_SustainX\_System.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/146/partner\_SustainX\_System.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.9006942,"longitude":-70.8816111,"master\_project\_id":null,"name":"SustainX Inc Isothermal Compressed Air Energy Storage","om\_contractor":"","organization":"","owner\_1":"SustainX","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.sustainx.com/","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Ramping ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Transmission Congestion Relief","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1500,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"New Hampshire","status":"Operational","street\_address":"72 Stard Road","systems\_integration":"","technology\_classification":"","technology\_type":"Modular Iso-thermal Compressed Air","technology\_type\_l1":"Modular Compressed Air Storage","technology\_type\_l2":"Compressed Air Storage","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-11-30T23:58:02Z","updated\_at\_by\_admin":"2016-05-24T23:38:35Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"SustainX","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Montezuma Canyon","commissioning\_on":"2022-07-01","companion":"This is an Off-Grid project","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"info@ironedison.com","contact\_info\_visible":true,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-07-25T03:27:55Z","created\_by\_id":50,"debt\_investor":"","decommissioning\_on":null,"desc":"This 700 Ah 24 V Nickel Iron battery is powered by 2.8 kW of solar panels. This system utilizes the Apollo Solar Pre-wired Panel (PWP) with a 3200 Watt pure sine wave inverter, and dual 80 amp MPPT charge controllers.","developer":"","electronics\_provider":"Apollo Solar","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":147,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/147/Battery5.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/147/thumb\_Battery5.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/147/partner\_Battery5.JPG"}},"integrator\_company":"Iron Edison Battery Company","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.5333311,"longitude":-109.2312242,"master\_project\_id":null,"name":"Montezuma Canyon - Apollo Solar / Iron Edison","om\_contractor":"Iron Edison, Howard Ransdell","organization":null,"owner\_1":"Howard Ransdell","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://ironedison.com","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"The NREL Commercialization Assistance Program (NCAP) helps emerging companies overcome technical barriers to commercializing clean energy technology.","research\_institution":"National Renewable Energy Labatory","research\_institution\_link":"http://www.nrel.gov/technologytransfer/ncap.html","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":17,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"Utah","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Nickel Iron Battery","technology\_type\_l1":"Nickel Iron Battery","technology\_type\_l2":"Nickel based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-25T00:55:47Z","updated\_at\_by\_admin":"2016-05-25T00:55:47Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Iron Edison Battery Company","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Las Cruces","commissioning\_on":"2022-07-01","companion":"Off-grid system","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"info@ironedison.com","contact\_info\_visible":true,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-07-25T04:05:13Z","created\_by\_id":50,"debt\_investor":"","decommissioning\_on":null,"desc":"This system features a 400 Ah 24 Volt Nickel Iron (NiFe) battery. The system is powered by a pole mounted solar array. The Apollo Solar Pre-wired panel includes a 3200 Watt Pure sine wave inverter with an integrated 80 Amp MPPT charge controller. The Apollo Switchgear Module houses the DC disconnect and the AC transfer switch. ","developer":"","electronics\_provider":"Apollo Solar","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":148,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/148/Iron\_Edison\_24V\_400Ah\_PWP.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/148/thumb\_Iron\_Edison\_24V\_400Ah\_PWP.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/148/partner\_Iron\_Edison\_24V\_400Ah\_PWP.JPG"}},"integrator\_company":"Iron Edison Battery Company","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":32.3199396,"longitude":-106.7636538,"master\_project\_id":null,"name":"Las Cruces - Apollo Solar / Iron Edison","om\_contractor":"","organization":null,"owner\_1":"Confidential","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://ironedison.com","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"The NREL Commercialization Assistance Program (NCAP) helps emerging companies overcome technical barriers to commercializing clean energy technology.","research\_institution":"National Renewable Energy Labatory","research\_institution\_link":"http://www.nrel.gov/technologytransfer/ncap.html","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":48,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"New Mexico","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Nickel Iron Battery","technology\_type\_l1":"Nickel Iron Battery","technology\_type\_l2":"Nickel based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-25T23:37:26Z","updated\_at\_by\_admin":"2016-05-25T23:37:26Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Iron Edison Battery Company","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Danbury","commissioning\_on":"2022-07-01","companion":"Solar PV","construction\_on":null,"contact\_city":"Danbury","contact\_country":"United States","contact\_email":"rwpooley@sbcglobal.net","contact\_info\_visible":false,"contact\_name":"Dick Pooley","contact\_phone":"203-431-3200","contact\_state":"CT","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-07-25T04:14:41Z","created\_by\_id":50,"debt\_investor":"","decommissioning\_on":null,"desc":"This system had been installed around 1997. When the grid went down a few years ago across the northeastern US, the system owner found out that his battery no longer held any charge. He left the system disconnected until 2012 when he contacted Iron Edison to get a new battery for an old Trace inverter. This system features a 400Ah 48V Nickel Iron battery sitting atop a custom-fit battery rack. It is an off-grid system supplementing on-site renewable generation.","developer":"","electronics\_provider":"Trace Engineering","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":149,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/149/IMG\_1656.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/149/thumb\_IMG\_1656.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/149/partner\_IMG\_1656.JPG"}},"integrator\_company":"Iron Edison Battery Company","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":41.394817,"longitude":-73.4540111,"master\_project\_id":null,"name":"Danbury Residence - Trace / Iron Edison","om\_contractor":"","organization":null,"owner\_1":"D.P.","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://ironedison.com","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"The NREL Commercialization Assistance Program (NCAP) helps emerging companies overcome technical barriers to commercializing clean energy technology.","research\_institution":"National Renewable Energy Labatory","research\_institution\_link":"http://www.nrel.gov/technologytransfer/ncap.html","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":20,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"Connecticut","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Nickel Iron Battery","technology\_type\_l1":"Nickel Iron Battery","technology\_type\_l2":"Nickel based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-25T23:42:10Z","updated\_at\_by\_admin":"2016-05-25T23:42:10Z","updated\_by":null,"updated\_by\_email":null,"utility":"Connecticut Natural Gas","utility\_type":"","vendor\_company":"Iron Edison Battery Company","zip":""}},{"project":{"announcement\_on":"2022-08-06","approval\_status":2,"city":"Denair","commissioning\_on":"2022-05-22","companion":"Solar","construction\_on":"2022-12-01","contact\_city":"Sunnyvale","contact\_country":"United States","contact\_email":"BAdams@EnerVault.com","contact\_info\_visible":false,"contact\_name":"Bret Adams","contact\_phone":"(408) 934-6840","contact\_state":"CA","contact\_street\_address":"1244 Reamwood Ave.","contact\_zip":"94089","contractor\_1":"Raytheon Ktech","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-07-26T21:18:59Z","created\_by\_id":51,"debt\_investor":"","decommissioning\_on":"2022-06-01","desc":"This project demonstrated an iron-chromium redox flow battery system in combination with an intermittent, renewable energy source. The project used EnerVault’s long duration system to reduce demand charges and enhance the performance of a 150 kWp AC dual-axis tracking photovoltaic system to power a large 260 kW irrigation pump. The project was funded under a U.S. DOE ARRA Storage Demonstration grant.","developer":"JKB Energy","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":4764284.0,"funding\_amount\_2":476428.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Office of Electricity and Reliability – RD&D","funding\_source\_2":"State/Provincial/Regional RD&D","funding\_source\_3":"","funding\_source\_details\_1":"US Department of Energy, Office of Electricity - U.S. DOE ARRA Storage Demonstration","funding\_source\_details\_2":"California Energy Commission - PIER Program - PIR-10-066","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":150,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/150/EnerVault\_Turlock\_Mtn\_View\_facebook.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/150/thumb\_EnerVault\_Turlock\_Mtn\_View\_facebook.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/150/partner\_EnerVault\_Turlock\_Mtn\_View\_facebook.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.526323,"longitude":-120.7968711,"master\_project\_id":null,"name":"EnerVault Redox Flow Battery Demo Project","om\_contractor":"","organization":null,"owner\_1":"EnerVault","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"http://www.sandia.gov/ess/docs/pr\_conferences/2014/Thursday/Session7/01\_Nevins\_Sheri\_IRON-CHROMIUM\_REDOX.pdf","primary\_reference":"http://enervault.com/turlock/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"This system will demonstrate the functionality of a flow battery system when coupled with an intermittent renewable energy source.","research\_institution":"National Energy Technology Laboratory","research\_institution\_link":"http://www.netl.doe.gov/","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":250,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"De-Commissioned","street\_address":"Almond Farm","systems\_integration":"","technology\_classification":"","technology\_type":"Iron-chromium Flow Battery","technology\_type\_l1":"Iron-chromium Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-25T23:42:59Z","updated\_at\_by\_admin":"2016-05-25T23:42:59Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"EnerVault","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Kasai","commissioning\_on":"2022-07-30","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jim.allen@us.panasonic.com","contact\_info\_visible":false,"contact\_name":"Jim Allen","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2012-07-30T19:06:40Z","created\_by\_id":53,"debt\_investor":"","decommissioning\_on":null,"desc":"Kasai Green Energy Park Massive Testing Site for the Realization of a Low-Carbon Society.\r\n\r\nPanasonic is contributing towards the realization of a low-carbon society through its photovoltaic modules and lithium-ion batteries, as well as through its energy management technologies for the control of these component technologies. The company has begun various proving tests at its Kasai Plant in Hyogo prefecture,which which is Panasonic's manufacturing facility for batteries used in environmentally-friendly vehicles.\r\n\r\nBy bringing together green minds, green actions, and green technologies,we are contributing in the movement towards a global low-carbon society. The Kasai Green Energy Park is at the forefront of this movement,and Panasonic is combining the efforts of all its companies in order to contribute to achieving a green society on a global level.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":152,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/152/img\_about01.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/152/thumb\_img\_about01.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/152/partner\_img\_about01.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.9279363,"longitude":134.8416219,"master\_project\_id":null,"name":"Kasai Green Energy Park - Panasonic","om\_contractor":"","organization":"","owner\_1":"Panasonic Inc","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.panasonic.com/business/pesna/includes/pdf/Products\_Battery%20Storage%20-%20Storage%20Battery%20System.pdf","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":288,"size\_kwh":5.2,"size\_kwh\_hours":5,"size\_kwh\_minutes":12.0,"state":"Hyogo","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T23:54:07Z","updated\_at\_by\_admin":"2016-05-26T20:59:08Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"Panasonic","zip":""}},{"project":{"announcement\_on":"2022-11-01","approval\_status":1,"city":"Anxi","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"brian.caffey@cnesa.org","contact\_info\_visible":false,"contact\_name":"Brian Caffey","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2012-08-13T05:54:14Z","created\_by\_id":39,"debt\_investor":"","decommissioning\_on":null,"desc":"In October 2011, the Fujian Electric Power Research Institute began plans to develop a mobile energy storage prototype project consisting of (I) two sets of 125 kW / 250 kWh battery systems and (II) one 125 kW / 375 kWh hour battery system. This energy storage unit will provide peak electricity for 10 to 15 commercial electricity consumers in the tea production industry. When Anxi is not producing tea, the system is moved to Fuan to meet peak electricity demands for manufacturing of white tea. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":153,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/153/MBESS.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/153/thumb\_MBESS.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/153/partner\_MBESS.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":25.055999,"longitude":118.186264,"master\_project\_id":null,"name":"Fujian Electric Power Research Institute Mobile Energy Storage Station I","om\_contractor":"","organization":"N/A","owner\_1":"Fujian Electric Power Research Institute","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://link.springer.com/article/10.1007/s40565-015-0134-y","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"Fujian Electric Power Resarch Institute","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Fujian","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-28T04:45:27Z","updated\_at\_by\_admin":"2016-05-26T21:09:22Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-11-01","approval\_status":1,"city":"Anxi","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"brian.caffey@cnesa.org","contact\_info\_visible":false,"contact\_name":"Brian Caffey","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2012-08-13T06:12:36Z","created\_by\_id":39,"debt\_investor":"","decommissioning\_on":null,"desc":"In October 2011, the Fujian Electric Power Research Institute began plans to develop a mobile energy storage prototype project consisting of (I) two sets of 125 kW / 250 kWh battery systems and (II) one 125 kW / 375 kWh hour battery system. This energy storage unit will provide peak electricity for 10 to 15 commercial electricity consumers in the tea production industry. When Anxi is not producing tea, the system is moved to Fuan to meet peak electricity demands for manufacturing of white tea. 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Original plans to include 4MW of sodium sulfur batteries have been delayed over safety concerns. \r\n\r\nEnergy storage applications include wind solar and other renewable energy integration, frequency regulation and voltage support. The project is focused on using battery energy storage to enable interactive management of the electric power grid. 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Original plans to include 4 MW of sodium sulfur batteries have been delayed over safety concerns. \r\n\r\nEnergy storage applications include wind solar and other renewable energy integration, frequency regulation and voltage support. The project is focused on using battery energy storage to enable interactive management of the electric power grid. 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Original plans to include 4 MW of sodium sulfur batteries have been delayed over safety concerns. \r\n\r\nEnergy storage applications include wind solar and other renewable energy integration, frequency regulation and voltage support. The project is focused on using battery energy storage to enable interactive management of the electric power grid. 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Original plans to include 4MW of sodium sulfur batteries have been delayed over safety concerns. \r\n\r\nEnergy storage applications include wind solar and other renewable energy integration, frequency regulation and voltage support. The project is focused on using battery energy storage to enable interactive management of the electric power grid. \r\n\r\nhttp://www.powermag.com/large-china-energy-storage-project-begins-operation/","developer":"","electronics\_provider":"XJ Group Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":158,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/158/Zhangbei\_1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/158/thumb\_Zhangbei\_1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/158/partner\_Zhangbei\_1.jpg"}},"integrator\_company":"State Grid Corporation of China (SGCC)","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":41.158557,"longitude":114.720086,"master\_project\_id":null,"name":"Zhangbei National Wind and Solar Energy Storage and Transmission Demonstration Project (IV)","om\_contractor":"","organization":"","owner\_1":"State Grid Corporation of China (SGCC)","owner\_2":"","owner\_type":"3","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.powermag.com/large-china-energy-storage-project-begins-operation/","primary\_reference1":"http://en.calb.cn/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Ramping ","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":3000,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Hebei","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T17:21:21Z","updated\_at\_by\_admin":"2016-05-26T21:41:15Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"State Grid Corporation of China (SGCC)","utility\_type":"Federally Owned","vendor\_company":"China Aviation Lithium Battery Co., Ltd. (CALB)","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Zhangbei","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"brian.caffey@cnesa.org","contact\_info\_visible":false,"contact\_name":"Jake Bartell","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2012-08-13T09:05:25Z","created\_by\_id":39,"debt\_investor":"","decommissioning\_on":null,"desc":"The Zhangbei National Wind and Solar Energy Storage and Transmission Demonstration Project will eventually grow to include 500 MW of installed wind capacity, 100 MW of installed solar PV capacity and 110 MW of energy storage with an overall investment of 12 billion RMB (1.89 billion USD). \r\n\r\nThe project currently includes a total of 14 MW of lithium-ion batteries and a vanadium redox flow battery:\r\n(I) 6 MW / 36 MWh Lithium Iron Phosphate batteries (BYD Auto)\r\n(II) 4 MW / 16 MWh Lithium-ion batteries (Amperex Technology Limited (ATL))\r\n(III) 3 MW / 9 MWh Lithium-ion batteries (China Aviation Lithium Battery Co., Ltd.)\r\n(IV) 1 MW / 2 MWh Lithium-ion batteries (Wanxiang Group)\r\n(V) 2 MW / 8 MWh Vanadium Redox Flow Battery (Prudent Energy)\r\nNote: The 5 National Wind and Solar Energy Storage and Transmission Demonstration Project entries in the DOE Energy Storage Database correspond to the 4 lithium-ion battery systems and 1 vanadium redox flow battery system. Original plans to include 4MW of sodium sulfur batteries have been delayed over safety concerns. \r\n\r\nEnergy storage applications include wind solar and other renewable energy integration, frequency regulation and voltage support. The project is focused on using battery energy storage to enable interactive management of the electric power grid. 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The Ice Thermal Storage System provides load shifting to the owner-occupied office and technical center. On most days while the building is occupied (peak hours), the building can run solely off of the ice system. However, there are certain peak summer days (roughly 30% of the time) when a chiller is run in in series with the storage system to meet the total building demand. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":160,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/160/nissan\_2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/160/thumb\_nissan\_2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/160/partner\_nissan\_2.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"MISO","latitude":42.508645,"longitude":-83.4109834,"master\_project\_id":null,"name":"Nissan Technical Center North America","om\_contractor":"","organization":"","owner\_1":"Nissan","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.calmac.com/","primary\_reference1":"","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1425,"size\_kwh":16.0,"size\_kwh\_hours":16,"size\_kwh\_minutes":0.0,"state":"Michigan","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-01T01:21:54Z","updated\_at\_by\_admin":"2016-05-26T22:09:06Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":"48331"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Plano","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"JrGarnic@JCPenney.com","contact\_info\_visible":false,"contact\_name":"John Garnica","contact\_phone":"9724318690","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-08-16T19:36:54Z","created\_by\_id":17,"debt\_investor":"","decommissioning\_on":null,"desc":"CALMAC’s technology has proven its versatility to reduce operating costs since the tanks were installed in 1991. However, today the energy landscape in Texas is vastly different from 25 years ago. JCPenney is currently faced with a ratcheted demand charge from its utility as well as coincident peak charge, which make up a large portion of the company’s monthly utility bill.\r\n\r\nWith the ratcheted demand pricing, the month with the highest energy usage sets the annual peak demand charge. In 2013, the annual peak demand charge was set in August at $37,479. The charge is ratcheted at 80 percent, which means that for the 11 months following August, JCPenney pays a demand charge of $29,983 (80 percent of $37,479). This applies unless a new peak demand is set, in which case the process starts over. \r\n\r\nThe other significant demand charge that JCPenney’s Headquarters incurs is called a Transmission Cost Recovery Factor, also known as a 4CP or coincident peak demand charge. The 4CP is determined by averaging a customer’s demand during the highest grid-wide peak hours of peak demand in each of the four summer months, June through September. This charge is levied by ERCOT, the grid operator for Texas, and is also ratcheted, but at 100 percent.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":161,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/161/JCP\_HQ.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/161/thumb\_JCP\_HQ.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/161/partner\_JCP\_HQ.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":33.0796578,"longitude":-96.8321443,"master\_project\_id":null,"name":"JC Penney Headquarters - Calmac","om\_contractor":"","organization":"","owner\_1":"JC Penney","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.calmac.com/press-release-jcpenney-headquarters-benefits-from-25-years-of-energy-storage-using-calmac-icebank-technology","primary\_reference1":"http://www.environmentalleader.com/2010/08/11/eaton-jcpenney-pnc-add-to-their-leed-portfolios/","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - 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The project is supplying emissions-free renewable energy and clean, flexible, operating reserve capacity to the PJM Interconnection, the largest power market in the world. ","developer":"AES Energy Storage","electronics\_provider":"Parker SSD","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":164,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/164/AES\_Laurel\_Mountain.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/164/thumb\_AES\_Laurel\_Mountain.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/164/partner\_AES\_Laurel\_Mountain.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.002039,"longitude":-79.887705,"master\_project\_id":null,"name":"AES Laurel Mountain","om\_contractor":"","organization":"","owner\_1":"AES Wind Generation","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"400,000 MWh of operational service","primary\_reference":"http://aesenergystorage.com/deployments/","primary\_reference1":"http://energystorage.org/energy-storage/case-studies/frequency-regulation-services-and-firm-wind-product-aes-energy-storage","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Ramping ","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":32000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"West Virginia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-25T23:17:24Z","updated\_at\_by\_admin":"2016-05-26T22:59:13Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"A123 Systems","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Johnson City","commissioning\_on":"2021-12-31","companion":"Grid","construction\_on":null,"contact\_city":"Arlington","contact\_country":"United States","contact\_email":"praveen.kathpal@aes.com; kate.mcginnis@aes.com","contact\_info\_visible":false,"contact\_name":"Praveen Kathpal; Kate McGinnis","contact\_phone":"703-682-6990","contact\_state":"VA","contact\_street\_address":"4300 Wilson Boulevard 11th Floor","contact\_zip":"22203","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-08-21T20:35:02Z","created\_by\_id":11,"debt\_investor":"","decommissioning\_on":"2022-03-31","desc":"AES installed a bank of 800,000 A123 Lithium-ion batteries to perform frequency regulation for the New York ISO. The system was the largest Lithium-ion battery in commercial service on the US power grid when completed.","developer":"AES Energy Storage","electronics\_provider":"Parker SSD","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":165,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/165/Johnson\_City\_AES\_plant.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/165/thumb\_Johnson\_City\_AES\_plant.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/165/partner\_Johnson\_City\_AES\_plant.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":42.112485,"longitude":-75.976128,"master\_project\_id":null,"name":"AES Johnson City","om\_contractor":"","organization":null,"owner\_1":"AES Energy Storage","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://ivres.ivedc.com/media/managed/ivres2015speakerpresentations/2\_Kate\_McG\_Reduced\_2015\_0312\_AES\_Energy\_Storage\_IVREC.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":8000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"New York","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-27T00:45:21Z","updated\_at\_by\_admin":"2016-05-27T00:45:21Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"A123","zip":""}},{"project":{"announcement\_on":"2022-07-01","approval\_status":2,"city":"Pittsburgh","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-12-01","contact\_city":"Pittsburgh","contact\_country":"United States","contact\_email":"twiley@aquion-energy.com","contact\_info\_visible":false,"contact\_name":"Theodore Wiley","contact\_phone":"412-408-3383","contact\_state":"PA","contact\_street\_address":"32 39th Street","contact\_zip":"15201","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-09-18T23:50:03Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-07-01","desc":"Through the course of this project, Aquion developed its aqueous electrolyte electrochemical energy storage device to the point where large demonstration units (> 10 kWh) were able to function in grid-supporting functions detailed by their collaborators. Aquion’s final deliverable was an ~15 kWh system, dubbed an aqueous hybrid ion (AHI) battery, that has the ability to perform medium to long duration (> 2 hours) charge and discharge functions approaching 95% DC-DC efficiency. \r\n\r\nThe system has functioned, and continues to function as predicted with no indication that it will not tolerate well beyond 10 calendar years and 10,000 cycles. It has been in continuous operation for more than 1 year with 1,000 cycles (of varying depth of discharge, including 100% depth of discharge) and no identifiable degradation to the system. The final thick electrode cell structure has shown an energy density of 25 kWh/m3 at a five hour (or greater) discharge time. The primary chemistry has remained non-toxic, containing no acids or other corrosive chemicals, and the battery units have passed numerous safety tests, including flame resistance testing. These tests have verified the claim that the device is safe to use and contains no hazardous materials. Current projections show costs at the pack level to offer best in class value and are competitive with lead-acid batteries, factoring in LCOE.\r\n\r\nThe final deliverable system for the DOE award was assembled in late 2011 and testing began shortly thereafter. This system consists of 270 Battery 0 units connected in series, with a footprint of 45 x 58 x 60 (LxWxH) and weighing approximately 2800 lbs. It should be noted that a significant portion of this weight and footprint is a temporary racking system that allows for varying pressure to be placed on the batteries to test for gassing and a conductivity issues. The system has been in continuous operation since early 2012, and continued in operation until July 2013 with no performance degradation in the chemistry.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":5179000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Office of Electricity and Reliability – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy - Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":166,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/166/Aquion.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/166/thumb\_Aquion.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/166/partner\_Aquion.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.4687825,"longitude":-79.9656998,"master\_project\_id":null,"name":"Aquion Energy Sodium-Ion Battery for Grid-level Applications","om\_contractor":"","organization":null,"owner\_1":"Aquion Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.aquionenergy.com","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"Yes","research\_desc":"","research\_institution":"Carnegie Mellon University","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":15,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Pennsylvania","status":"De-Commissioned","street\_address":"32 39th Street","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Sodium-ion Battery","technology\_type\_l1":"Sodium-ion Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-26T23:22:03Z","updated\_at\_by\_admin":"2016-05-26T23:22:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Aquion Energy","zip":"15201"}},{"project":{"announcement\_on":"2022-03-01","approval\_status":2,"city":"Slough","commissioning\_on":"2022-07-31","companion":"","construction\_on":"2022-02-01","contact\_city":"London","contact\_country":"United Kingdom","contact\_email":"alicia.moghtader@highview-power.com","contact\_info\_visible":true,"contact\_name":"Alicia Moghtader","contact\_phone":"+44 (0)207 872 5800","contact\_state":"London","contact\_street\_address":"1 Northumberland Avenue","contact\_zip":"WC2N 5BW","contractor\_1":"Highview Power Storage","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2012-10-31T14:26:03Z","created\_by\_id":13,"debt\_investor":"NA","decommissioning\_on":"2022-11-30","desc":"\*\*\* Relocated to the University of Birmingham’s Centre for Cryogenic Energy Storage. The pilot project was operated for four years before being donated to the University and Re-Commissioned at its new location on December 11, 2015.\r\n\r\nHighview‘s technology uses off-peak or ‘wrong-time’ power to liquefy air (710 litres of air becomes one litre of liquid air), which is then held in a tank until electricity is required. The liquid air is then returned to gaseous form, expanding 710 times, to drive a turbine. \r\n\r\nExtreme cold is recovered and stored to assist with subsequent liquefaction, thus greatly improving the overall efficiency of the system. If waste heat is available (e.g. from a neighbouring power plant or industrial process) then this can be introduced at the expansion phase, enhancing system efficiency.\r\n\r\nhttp://www.energymatters.com.au/renewable-news/cryogenic-energy-storage-em5250/","developer":"Highview Power Storage","electronics\_provider":"Siemens, ABB","energy\_management\_software\_provider":null,"funding\_amount\_1":1760000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"UK Department of Energy and Climate Change (DECC) - Smart Grid Demonstration Capital Grant Programme ","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":167,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/167/Highview\_s\_300kW\_Pilot\_Plant\_in\_Slough.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/167/thumb\_Highview\_s\_300kW\_Pilot\_Plant\_in\_Slough.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/167/partner\_Highview\_s\_300kW\_Pilot\_Plant\_in\_Slough.jpg"}},"integrator\_company":"Highview Power Storage","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":52.4608009,"longitude":-1.914995,"master\_project\_id":"1973:2163","name":"Highview Pilot Plant - Relocated to University of Birmingham","om\_contractor":"Highview Power Storage","organization":null,"owner\_1":"University of Birmingham","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.highview-power.com/liquid-air-energy-storage-laes-pilot-plant-july-2011-november-2014/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"Working with University of Leeds since 2004, we have completed the design, analysis, simulation and lab-testing of the key sub-systems. During this programme, we have jointly funded two PhDs – one with University of Leeds and one with Queen Mary University of London. This collaboration has helped support the process engineering for the full system design, provide independent thermodynamic analysis as well as consider methods for system optimization. ","research\_institution":"University of Birmingham Centre for Cryogenic Energy Storage (BCCES); University of Leeds + Queen Mary University of London","research\_institution\_link":"http://www.birmingham.ac.uk/research/activity/energy/research/centre-energy-storage/cryogenic-energy-storage/index.aspx","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":350,"size\_kwh":7.0,"size\_kwh\_hours":7,"size\_kwh\_minutes":0.0,"state":"Berkshire","status":"De-Commissioned","street\_address":"342 Edinburgh Avenue","systems\_integration":null,"technology\_classification":null,"technology\_type":"Liquid Air Energy Storage","technology\_type\_l1":"Modular Compressed Air Storage","technology\_type\_l2":"Compressed Air Storage","technology\_type\_l3":"Liquid Air Energy Storage","updated\_at":"2016-07-21T22:37:17Z","updated\_at\_by\_admin":"2016-07-21T22:37:17Z","updated\_by":null,"updated\_by\_email":null,"utility":"SSE (Scottish and Southern Energy)","utility\_type":"","vendor\_company":"Highview Power Storage","zip":"SL1 4TU"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Shiura","commissioning\_on":"2022-02-01","companion":"15.4 MW Wind Farm","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@hitachi.com","contact\_info\_visible":false,"contact\_name":"Jake Bartell","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2012-11-29T09:37:53Z","created\_by\_id":34,"debt\_investor":"","decommissioning\_on":null,"desc":"The first wind farm in Japan with an output fluctuation regulating system. The wind farm has been operating commercially since 2009 with a total rated capacity of 15.4 MW output from the wind turbines combined with a lead acid battery system for output stabilization with a capacity of 4.5 MW: LL-W with a rated capacity of 10.5 MWh.\r\n\r\nIn the Tohoku-Area Japan, for the wind farm to be connected to the grid and sell the generated electricity to the utility, the output from the system must be kept within 10% of the rated output of the wind generation in a randomly selected 20 minute time range. The LL-W is a specially developed VRLA(Valve Regulated Lead Acid) battery to be used at PSOC (Partial State of Charge suited for stabilizing the output fluctuation from the wind generation, and with an expected lifetime of 17 years. As lead acid batteries are a cost efficient technology, especially combined with the long life of the LL-W which requires no major additional costs, such as replacements, the system contributes to the cost reduction of the overall project.","developer":"Hitachi Power Solutions Co., Ltd.","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":168,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/168/Shiura.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/168/thumb\_Shiura.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/168/partner\_Shiura.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.054513,"longitude":140.35185,"master\_project\_id":null,"name":"Shiura Wind Park 4.5 MW / 10.5 MWh BESS","om\_contractor":"","organization":"","owner\_1":"Kuroshio Power","owner\_2":"","owner\_type":"3","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.hitachi.com/rev/pdf/2011/r2011\_01\_104.pdf","primary\_reference1":"","projected\_lifetime":"17.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":4500,"size\_kwh":2.33333333333333,"size\_kwh\_hours":2,"size\_kwh\_minutes":20.0,"state":"Aomori","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Valve Regulated Lead-acid Battery","technology\_type\_l1":"Valve Regulated Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-22T23:48:53Z","updated\_at\_by\_admin":"2016-05-26T23:29:50Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"Shin-Kobe Electric Machinery Co.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Jeju-si","commissioning\_on":"2021-12-13","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"kimcheongi@kepco.co.kr","contact\_info\_visible":false,"contact\_name":"CheonGi Kim, Kim Dae Kyeong (PD, KETEP, Korea) ","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2012-12-13T05:13:25Z","created\_by\_id":67,"debt\_investor":"","decommissioning\_on":null,"desc":"KEPCO Smartgrid consortium installed 800 kW (200 kWh) of Li-ion battery based energy storage system to control output of wind power in 5.5 MW Haengwon wind farm.","developer":"","electronics\_provider":"Hyosung Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":169,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/169/SR\_ESS.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/169/thumb\_SR\_ESS.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/169/partner\_SR\_ESS.JPG"}},"integrator\_company":"Korea Electric Power Corporation (KEPCO)","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":33.5588706,"longitude":126.8145958,"master\_project\_id":null,"name":"Jeju Smart Grid Test-Bed and Wind Farm","om\_contractor":"","organization":"Korea Electric Power Corporation (KEPCO)","owner\_1":"Korea Electric Power Corporation (KEPCO)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.smartgrid.or.kr/10eng3-1.php","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity 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SDI","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Jeju-si","commissioning\_on":"2021-12-13","companion":"PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"kimcheongi@kepco.co.kr; 08101876@kepco.co.kr","contact\_info\_visible":false,"contact\_name":"Kim Dae Kyeong (PD, KETEP, Korea) ","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2012-12-13T05:58:52Z","created\_by\_id":67,"debt\_investor":"","decommissioning\_on":null,"desc":"KT Smartgrid consortium installed 40 kW (30 kWh) of Li-ion battery based energy storage system to aid building energy management with PV in Sehwa middle school.","developer":"","electronics\_provider":"Hyosung Corporation","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":170,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/170/SP\_ESS.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/170/thumb\_SP\_ESS.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/170/partner\_SP\_ESS.JPG"}},"integrator\_company":"Hyosung Corporation","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.5213068,"longitude":126.8534491,"master\_project\_id":null,"name":"Jeju Smart Grid: Sehwa School Demo","om\_contractor":"","organization":null,"owner\_1":"KT","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.smartgrid.or.kr/10eng3-1.php","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity 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SDI","zip":""}},{"project":{"announcement\_on":"2022-05-03","approval\_status":1,"city":"Jeju-si","commissioning\_on":"2022-07-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"jang7@kepco.co.kr; hblue@kepco.co.kr; kimcheongi@kepco.co.kr; 08101876@kepco.co.kr","contact\_info\_visible":false,"contact\_name":"Byunghoon Chang, Kim Dae Kyeong (PD, KETEP, Korea) ","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2012-12-13T06:33:56Z","created\_by\_id":67,"debt\_investor":"","decommissioning\_on":null,"desc":"KEPCO is installing 4 MW (8 MWh) of Li-ion battery based energy storage system to integrate renewables to 154 kV transmission line in a publicly-funded demonstration project.","developer":"","electronics\_provider":"Hyosung Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":171,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/171/samsung.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/171/thumb\_samsung.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/171/partner\_samsung.png"}},"integrator\_company":"Iljin Electric","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":33.532445,"longitude":126.675996,"master\_project\_id":null,"name":"Jeju SmartGrid Jocheon Substation ESS Test","om\_contractor":"","organization":"","owner\_1":"Korea Electric Power Corporation (KEPCO)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Efficiency: 91.2% Charging, 93.1% Discharging - Round-trip Efficiency: 85%","primary\_reference":"http://ethanpublishing.com/uploadfile/2015/0106/20150106024232688.pdf","primary\_reference1":"http://lowcarbonfutures.org/sites/default/files/UK-Korea,%20Nov%202013%20-%20KEPCO,%20Byunghoon%20Chang.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Ramping ","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"Voltage Support","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":4000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Jeju-do","status":"Operational","street\_address":"Hamdok-ri, Jochon-eup","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-26T06:35:30Z","updated\_at\_by\_admin":"2016-06-06T21:54:04Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Public Owned","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":"2021-12-13","approval\_status":1,"city":"Yongin-si","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"iy5.choi@samsung.com","contact\_info\_visible":false,"contact\_name":"Ilyong Choi","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2012-12-13T07:05:57Z","created\_by\_id":67,"debt\_investor":"","decommissioning\_on":null,"desc":"Samsung SDI installed 1 MW / 1 MWh of Li-ion battery based energy storage system for industrial energy management with peak-shifting. The system is located at the Samsung SDI Headquarters in Yongin-Si, South Korea.","developer":"","electronics\_provider":"Hyosung Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":null,"id":172,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/172/Giheung\_SDI\_ESS.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/172/thumb\_Giheung\_SDI\_ESS.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/172/partner\_Giheung\_SDI\_ESS.JPG"}},"integrator\_company":"Hyosung Corporation","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.2373591,"longitude":127.1122172,"master\_project\_id":null,"name":"Giheung Samsung SDI Energy Storage Project","om\_contractor":"","organization":" Samsung SDI","owner\_1":"Samsung SDI","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.samsungsdi.com/ess/energy-storage-system-reference.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Gyeonggi-do","status":"Operational","street\_address":"428-5 Gongse-dong, Giheung-gu","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-17T02:24:12Z","updated\_at\_by\_admin":"2016-06-06T22:19:31Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Federally Owned","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Guri-si","commissioning\_on":"2022-09-19","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Korea, South","contact\_email":"junilly@hyosung.com, byungtak.choi@kt.com","contact\_info\_visible":false,"contact\_name":"Jun Ill Yoon, Byungtak Choi","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2012-12-13T07:25:46Z","created\_by\_id":67,"debt\_investor":"","decommissioning\_on":null,"desc":"Hyosung has installed 250 kW / 500 kWh Li-ion battery energy storage system in Guri Agricultural Market Company (GAMACO). It helps building energy management and saving electric charges. It could be used as smart grid demand response resource.","developer":"","electronics\_provider":"Hyosung Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":173,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/173/Hyosung.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/173/thumb\_Hyosung.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/173/partner\_Hyosung.jpg"}},"integrator\_company":"Hyosung Corporation","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.6132366,"longitude":127.1448505,"master\_project\_id":null,"name":"KT GAMACO Project","om\_contractor":"","organization":"Hyosung Corporation, 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Road","contact\_zip":"19605","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2012-12-19T20:37:01Z","created\_by\_id":68,"debt\_investor":"","decommissioning\_on":null,"desc":"This OptiGrid system by EnerSys is a 1 MWh installation installed at Dynapower's vertically integrated manufacturing facility in South Burlington, Vermont to offset curtailment from the local utility.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":174,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/174/EnerSys2707\_Optigrid\_VT.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/174/thumb\_EnerSys2707\_Optigrid\_VT.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/174/partner\_EnerSys2707\_Optigrid\_VT.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":44.442312,"longitude":-73.153902,"master\_project\_id":null,"name":"EnerSys OptiGrid System at Dynapower Headquarters ","om\_contractor":"","organization":"EnerSys","owner\_1":"EnerSys","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://optigrid.enersys.com/","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Ramping ","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"Voltage Support","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Vermont","status":"Operational","street\_address":"85 Meadowland Drive","systems\_integration":"","technology\_classification":"","technology\_type":"Valve Regulated Lead-acid Battery","technology\_type\_l1":"Valve Regulated Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-28T05:39:03Z","updated\_at\_by\_admin":"2016-06-06T23:20:39Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"EnerSys","zip":"05403"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"ShenZhen","commissioning\_on":"2022-09-30","companion":"","construction\_on":"2022-09-01","contact\_city":"","contact\_country":"United States","contact\_email":"micheal.austin@byd.com; michael.liu@byd.com","contact\_info\_visible":false,"contact\_name":"Micheal Austin; Michael Liu","contact\_phone":"+1-800-BYD-AUTO","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-01-04T23:21:02Z","created\_by\_id":71,"debt\_investor":"","decommissioning\_on":null,"desc":"China Southern Power Grid (CSG) -- the second largest utility company in the world -- completed construction of China’s largest battery energy storage station (ESS) as well as the world’s first megawatt-level, grid-connected, environmentally-friendly, Iron-phosphate (Fe) battery storage station for commercial use, integrating BYD technology. Chinese CSG officials reported, “This Energy Storage Station is capable of charging or discharging over 12 Mega-Watt-hours or 3 Mega-Watts for 4 hours off of or onto the grid .","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":175,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/175/CSG\_0.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/175/thumb\_CSG\_0.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/175/partner\_CSG\_0.png"}},"integrator\_company":"Sifang","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":22.543099,"longitude":114.057868,"master\_project\_id":null,"name":"Southern Grid Baoqing Plant Phase 1 - BYD","om\_contractor":"","organization":"","owner\_1":"China Southern Power Grid","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.businesswire.com/news/home/20110930005644/en/China%E2%80%99s-Largest-Environmentally-friendly-Battery-Storage-Station-Service","primary\_reference1":"http://www.sifang-electric.com/index.php/en/projects/16/237","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":3000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Guangdong","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-28T21:05:10Z","updated\_at\_by\_admin":"2016-06-07T00:11:02Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"China Southern Power Grid","utility\_type":"Federally Owned","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Doha","commissioning\_on":"2021-12-09","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"micheal.austin@byd.com; sherry.li@byd.com","contact\_info\_visible":false,"contact\_name":"Micheal Austin; Sherry Li","contact\_phone":"+1-800-BYD-AUTO","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Qatar","created\_at":"2013-01-09T23:30:23Z","created\_by\_id":71,"debt\_investor":"","decommissioning\_on":null,"desc":"BYD announced the launch of a large 40-foot containerized Battery Energy Storage Station (ESS) in Doha, Qatar. The BYD ESS is part of a Solar Testing Facility whose ceremonial launch at the Qatar Science & Technology Park (QSTP) coincided with the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP18) that was held in Doha, Qatar.\r\n\r\nThe BYD containerized Energy Storage System is rated at 250 kW (300 KVa) and 500 KWh with nominal output voltage of 415 VAC at a frequency of 50Hz and is outfitted with environmental controls, inverters and transformers, all self-contained, in a 40 foot shipping container to provide stable power supply. The round trip efficiency of this 500KWh system was rated at 89% AC-DC-AC (with THD<3%).","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":176,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/176/Chevron-QatarESS-good.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/176/thumb\_Chevron-QatarESS-good.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/176/partner\_Chevron-QatarESS-good.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":25.3521436,"longitude":51.4939853,"master\_project\_id":null,"name":"BYD Energy Storage at Qatar Science & Technology Park","om\_contractor":"","organization":"BYD","owner\_1":"Green Gulf, Inc.","owner\_2":"Chevron Energy Solutions","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://byd.com/news/news-128.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Doha","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-28T06:01:12Z","updated\_at\_by\_admin":"2016-06-13T21:37:46Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-08-30","approval\_status":2,"city":"Huizhou","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"michael.liu@byd.com","contact\_info\_visible":false,"contact\_name":"Michael Liu","contact\_phone":"Office: 213.748.3980 x 58830 | mobile 213.309.1877","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-01-09T23:46:57Z","created\_by\_id":71,"debt\_investor":"","decommissioning\_on":null,"desc":"China’s Guangdong Nuclear Power Corp (CGNPC) awarded the contract for their largest high-power, high-capacity battery back-up stations to date, to BYD Ltd of Shenzhen who won the bid. A “National Energy Application Technology Research and Engineering demonstration project”, CGNPC plans to couple these 3.5 Mega-Watt-hour back-up batteries with their nuclear power stations to deliver power up to 2.5 MW levels. The energy storage station will serve as an emergency power source to safeguard workers and protect station equipment from being damaged in extreme conditions where the nuclear plants may lose their electrical supply.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":177,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/177/ZGH\_-\_BYD\_Energy\_Storage\_Cabinets\_--long\_shot.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/177/thumb\_ZGH\_-\_BYD\_Energy\_Storage\_Cabinets\_--long\_shot.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/177/partner\_ZGH\_-\_BYD\_Energy\_Storage\_Cabinets\_--long\_shot.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":23.111847,"longitude":114.416196,"master\_project\_id":null,"name":"Guangdong Nuclear Power Corp - BYD","om\_contractor":"","organization":null,"owner\_1":"Guangdong Nuclear Power Corp","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance Data Not Available","primary\_reference":"http://www.businesswire.com/news/home/20120906006958/en/China%E2%80%99s-Guangdong-Nuclear-Power-Corp-Announces-Orders","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2500,"size\_kwh":1.4,"size\_kwh\_hours":1,"size\_kwh\_minutes":24.0,"state":"Guangdong","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-09T21:24:59Z","updated\_at\_by\_admin":"2016-06-09T21:24:59Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Basel","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"michael.liu@byd.com; micheal.austin@byd.com; sherry.li@byd.com","contact\_info\_visible":false,"contact\_name":"Michael Liu; Micheal Austin; Sherry Li","contact\_phone":"+1-800-BYD-AUTO","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Switzerland","created\_at":"2013-01-10T01:03:35Z","created\_by\_id":71,"debt\_investor":"","decommissioning\_on":null,"desc":"BYD's 50 kW / 60 kWh Energy Storage Station (ESS) has been delivered to Switzerland and put into service successfully thanks to the cooperation between BYD and its partner Ampard company. The main job for this project is to protect the local electrical grid by chopping apex and filling vale to ameliorate the stability and safety of the net. BYD has completed the installation of more than 100 megawatts of energy storage power station projects all over the world, including the CERTS-based ESS project for Chevron Corporation in the United States. 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Beacon flywheels recycle energy from the grid in response to changes in demand and grid frequency. When generated power exceeds load, the flywheels store the excess energy. When load increases, the flywheels return the energy to the grid. \r\n\r\nThe flywheel systems can respond nearly instantaneously to the ISO control signal at a rate that is 100 times faster than traditional generation resources. The plant can operate at 100% depth of discharge with no performance degradation over a 20-year lifetime, and can do so for more than 100,000 full charge/discharge cycles. The flywheels are rated at 0.1 MW and 0.025 MWh, for a plant total of 20.0 MW and 5.0 MWh of frequency response.\r\n","developer":"Beacon Power, LLC","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":24063978.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":181,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/181/20mw\_plant\_7305\_1920px.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/181/thumb\_20mw\_plant\_7305\_1920px.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/181/partner\_20mw\_plant\_7305\_1920px.jpg"}},"integrator\_company":"Beacon Power, LLC","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.9568399,"longitude":-76.0275859,"master\_project\_id":null,"name":"Beacon Power 20 MW Flywheel Frequency Regulation Plant","om\_contractor":"","organization":"","owner\_1":"Spindle Grid Regulation, LLC","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"<4 second response time","primary\_reference":"http://beaconpower.com/hazle-township-pennsylvania/","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"DOE, NETL","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":20000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Pennsylvania","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-10-26T05:42:33Z","updated\_at\_by\_admin":"2016-06-08T00:21:11Z","updated\_by":null,"updated\_by\_email":null,"utility":"PPL","utility\_type":"","vendor\_company":"Beacon Power, LLC","zip":""}},{"project":{"announcement\_on":"2022-09-01","approval\_status":1,"city":"Charleston","commissioning\_on":"2022-06-26","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"TFWEAVER@aep.com","contact\_info\_visible":false,"contact\_name":"Tom Weaver","contact\_phone":"614-716-5829","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"American Electric Power (AEP)","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-03-22T01:47:52Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This project was AEP's first substation battery as well as NGK's first MW-Scale NAS application outside Japan. The system was installed by American Electric Power to provide peak-shaving and transmission upgrade deferral benefits. This kind of system is particularly well-suited to transmission upgrade deferral because it can be moved to where it is needed most at any given time, unlike conventional transmission upgrade solutions. DOE / Sandia provided partial sponsorship, covering non-repeat expenses. \r\n\r\nOver the short term, the purpose of the Charleston Energy Storage Project is to mitigate current local capacity constraints and service reliability issues. The long term objective is to bring AEP one step closer to it’s vision of a storage-buffered grid of the future. ","developer":"American Electric Power (AEP)","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Sandia Labs","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":182,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/182/AEP\_NAS.JPG","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/182/thumb\_AEP\_NAS.JPG"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/182/partner\_AEP\_NAS.JPG"}},"integrator\_company":"S&C Electric Company","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":38.3498195,"longitude":-81.6326234,"master\_project\_id":null,"name":"Charleston NaS Energy Storage Project - AEP ","om\_contractor":"American Electric Power (AEP)","organization":"","owner\_1":"American Electric Power (AEP)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.sandia.gov/ess/docs/pr\_conferences/2006/nourai.pdf","primary\_reference1":"http://www.physics.arizona.edu/~cronin/Solar/References/Storage/Nourai.pdf","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1200,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"West Virginia","status":"Operational","street\_address":"Chemical Station (AEP Substation)","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-03T05:16:47Z","updated\_at\_by\_admin":"2016-06-08T00:36:49Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Appalachian Power","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Grand Coulee","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"lbrougher@usbr.gov","contact\_info\_visible":false,"contact\_name":"Lynne Brougher (Public Affairs Officer)","contact\_phone":"(509) 633-9503","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-03-25T23:53:33Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The John W. Keys III Pump-Generating Plant (formerly known as Grand Coulee Pump-Generating Plant) pumps water uphill 280 feet from Franklin D. Roosevelt Lake to Banks Lake. This water is used to irrigate approximately 670,000 acres of farmland in the Columbia Basin Project. More than 60 crops are grown in the basin and distributed across the nation\r\n\r\nConstruction of the irrigation facilities began in 1948. Components of the project include the pump-generating plant, feeder canal, and equalizing reservoir, which was later named Banks Lake. Banks Lake was formed by damming the northern 27 miles of the Grand Coulee, and has an active storage capacity of 715,000 acre-feet. The lake stores water for irrigation and also provides important recreational benefits to the region. The pump-generating plant began operation in 1951. From 1951 to 1953, six pumping units, each rated at 65,000 horsepower and with a capacity to pump 1,600 cubic feet per second, were installed in the plant. \r\n\r\nIn the early 1960s, investigations revealed the potential for power generation. Reversible pumps were installed to allow water from Banks Lake to flow back through the units to generate power during periods of peak demand. The first three generating pumps came online in 1973. Two more generating pumps were installed in 1983; the final generating pump was installed in January 1984. The total generating capacity of the plant is now 314,000 kilowatts. In 2008, the pump-generating plant was renamed in honor of John W. Keys III. Keys was Commissioner of the Bureau of Reclamation from 2001 to 2006 and Pacific Northwest Regional Director from 1986 to 1998. He was killed in a plane crash in 2008.","developer":"HDR","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":183,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/183/JohnKeysPump.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/183/thumb\_JohnKeysPump.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/183/partner\_JohnKeysPump.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.953884,"longitude":-118.989547,"master\_project\_id":null,"name":"John W. Keys III Pump-Generating Plant","om\_contractor":"","organization":null,"owner\_1":"Bonneville Power Administration","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.usbr.gov/pn/grandcoulee/pubs/powergeneration.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Ramping ","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":314000,"size\_kwh":80.0,"size\_kwh\_hours":80,"size\_kwh\_minutes":0.0,"state":"Washington","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-08T17:31:00Z","updated\_at\_by\_admin":"2016-06-08T17:31:00Z","updated\_by":null,"updated\_by\_email":null,"utility":"Bonneville Power Administration","utility\_type":"Public Owned","vendor\_company":"HDR","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Mount Holly","commissioning\_on":"2022-12-01","companion":"1.2 MW Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"randy.wheeless@duke-energy.com","contact\_info\_visible":false,"contact\_name":"Randy Wheeless","contact\_phone":"704-382-8379; 800-559-3853 (24hr)","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-03-28T17:01:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-12-01","desc":"\*\*\*This project was De-Commissioned in December 2014 and was replaced by a new Hybrid Energy Storage System (HESS) with more details under these two entries:\r\n- Duke Energy Rankin Substation - Win Inertia / Maxwell\r\n- Duke Energy Rankin Substation - Win Inertia / Aquion Energy\r\n\r\nIn 2010, Duke Energy, FIAMM, and S&C Electric Company came together to solve a problem that Duke Energy was beginning to experience on distribution circuits that have a high penetration of distributed solar generation. Due to passing clouds, solar energy output was observed to rapidly fluctuate; cases were observed where over 80% of a solar unit's output would drop in less than five seconds. This rapid fluctuation in circuit power flows can cause undesirable voltage conditions that are significant for existing infrastructure to correct. To solve this, a battery system was envisioned that charged and discharged to absorb the solar-induced \"power swings\", allowing the circuit's voltage profile to remain smooth despite significant and rapid changes to the power flows along it. \r\n\r\nDuke has arranged 12 batteries manufactured by the Italian company FIAMM for use in series in hybrid electric buses to make a 402-kilowatt battery.\r\nIt is used to smooth out large minute-by-minute spikes and troughs in production from the 1.2-megawatt rooftop solar project Duke operates about a mile away. The Rankin project is designed to give Duke hard data on what would be the smallest battery that could be used to reduce these swings effectively.\r\n\r\nFIAMM donated the battery to Duke to participate in getting the information. Dan Sowder, Senior Project Manager in Duke's Emerging-Technology Office says the Italian company is designing products for use with solar projects, based on the information it gets from the Rankin project.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":184,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/184/rankin.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/184/thumb\_rankin.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/184/partner\_rankin.jpg"}},"integrator\_company":"S&C Electric Company","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.2981943,"longitude":-81.0159081,"master\_project\_id":null,"name":"Rankin Substation Energy Storage Project","om\_contractor":"","organization":null,"owner\_1":"Duke Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.duke-energy.com/news/releases/2013020701.asp","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":402,"size\_kwh":0.7,"size\_kwh\_hours":0,"size\_kwh\_minutes":42.0,"state":"North Carolina","status":"De-Commissioned","street\_address":"Rankin Avenue Retail Substation","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-08T18:23:17Z","updated\_at\_by\_admin":"2016-06-08T18:23:17Z","updated\_by":null,"updated\_by\_email":null,"utility":"Duke Energy","utility\_type":"Investor Owned","vendor\_company":"FIAMM Energy Storage Solutions","zip":"28120"}},{"project":{"announcement\_on":"2022-09-02","approval\_status":2,"city":"Pyramid Lake","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"Mukhlesur.Bhuiyan@ladwp.com; Christina.Holland@ladwp.com","contact\_info\_visible":false,"contact\_name":"Mukhlesur Bhuiyan; Ronald O. Nichols, General Manager; Christy Holland","contact\_phone":"213-367-2532","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-02T18:46:18Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The pumping forebay, which is separated from the main reservoir by a dam located downstream from the Castaic Power Plant, functions in connection with the pumped storage operations of the plant. This assures the availability of at least 10,000 acre feet (12,000,000 m3) of water which can be pumped back to Pyramid Lake by the use of off peak energy when economical to do so. The pumping function at Castaic hydroelectric plant provides additional water for power generation beyond the supply of water available from the flow of the State Aqueduct. \r\n\r\nThe City of Los Angeles has need for capacity to meet its peak requirements ranging from 3 to 6 hours per day in the winter to 6 to 10 hours per day in summer, depending upon climatic conditions. The water which normally flows through the West Branch of the State Aqueduct during off peak periods, is stored in the higher level Pyramid Lake. This water can be channeled through the turbine generators in a very short time to immediately meet short time peak demands on the DWP's electric system. If the need exists for power for longer than normal peak demand periods, extra water can be pumped back to Pyramid Lake from Elderberry Lake to extend the peaking period.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":185,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/185/Castiac\_Pumped\_Hydro.JPG","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/185/thumb\_Castiac\_Pumped\_Hydro.JPG"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/185/partner\_Castiac\_Pumped\_Hydro.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.6548333,"longitude":-118.7751843,"master\_project\_id":null,"name":"Castaic Pumped-Storage Plant","om\_contractor":"","organization":null,"owner\_1":"Los Angeles Department of Water and Power","owner\_2":" Department of Water Resources of the State of California","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://ekwestrel.com/castaic-lake-hydroelectric-power-plant-facility/castaic-lake-hydroelectric-power-plant-facility/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1247000,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-17T19:55:13Z","updated\_at\_by\_admin":"2016-06-17T19:55:13Z","updated\_by":null,"updated\_by\_email":null,"utility":"Los Angeles Department of Water and Power","utility\_type":"Public Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-04-04","approval\_status":2,"city":"Dimona","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ita.karelic@enstorageinc.com","contact\_info\_visible":true,"contact\_name":"Itai Karelic","contact\_phone":"9174451683","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Israel","created\_at":"2013-04-04T18:18:32Z","created\_by\_id":87,"debt\_investor":"","decommissioning\_on":null,"desc":"EnStorage developed a cost effective flow battery based on proprietary hydrogen bromine technology. We connected our first technology demonstrator to the grid with a net-metering agreement and are further commercializing the system. The commercial system will have power rating of 150 kW with 6 hours of storage (900 kW/h) within a standard 40 ft shipping container.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":186,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/186/dim5.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/186/thumb\_dim5.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/186/partner\_dim5.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":31.069419,"longitude":35.033363,"master\_project\_id":null,"name":"EnStorage Technology Demonstrator","om\_contractor":"","organization":null,"owner\_1":"EnStorage","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.enstorageinc.com/","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"Transmission upgrades due to wind","service\_use\_case\_5":"Onsite Renewable Generation Shifting","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":50,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Negev","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Hydrogen Bromine Flow Battery","technology\_type\_l1":"Other","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-09-16T20:33:58Z","updated\_at\_by\_admin":"2014-09-16T20:33:58Z","updated\_by":null,"updated\_by\_email":null,"utility":"Israel","utility\_type":"Public Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Fresno County","commissioning\_on":"2022-06-30","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"CHP8@pge.com ","contact\_info\_visible":false,"contact\_name":"Charlie Post","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Pacific Gas and Electric","contractor\_2":"Granite Construction","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-09T18:20:29Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The power plant operates by moving water between two reservoirs, an upper and a lower. When energy demand is high, water is released from the upper reservoir to the plant where electricity is generated before the water is discharged into the lower reservoir. When demand is low at times such as night, water is then pumped back up to the upper reservoir to be used as stored energy for a later time. This is accomplished by pump-generators which serve a dual role as both pumps which can reverse into generators. The plant can go from a stand still to operational in eight minutes which allows it to meet peak energy demand. It consumes more electricity pumping versus generating electricity but pumping occurs during periods of low demand, making the plant economical.\r\n\r\nWatch a video about it: http://goo.gl/E7Rg4A\r\n","developer":"Pacific Gas and Electric","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":187,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/187/Helms\_3.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/187/thumb\_Helms\_3.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/187/partner\_Helms\_3.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.039152,"longitude":-118.96373,"master\_project\_id":null,"name":"Helms Pumped Hydro Storage Project","om\_contractor":"","organization":null,"owner\_1":"Pacific Gas and Electric","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Pump/generation cycle efficiency = 72%; breakers average 1,000 operations per year; powers 900,000 homes","primary\_reference":"http://www.pgecurrents.com/2011/10/17/by-the-numbers-helms-pumped-storage-facility/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1212000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-08T21:06:27Z","updated\_at\_by\_admin":"2016-06-08T21:06:27Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-06-03","approval\_status":2,"city":"La Jolla","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"San Diego","contact\_country":"United States","contact\_email":"bwashom@ucsd.edu","contact\_info\_visible":false,"contact\_name":"Byron Washom, Director of Strategic Energy Initiatives","contact\_phone":"(858) 869-5805","contact\_state":"CA","contact\_street\_address":"","contact\_zip":"","contractor\_1":"UC San Diego","contractor\_2":"Sunpower","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-09T20:56:59Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-09-01","desc":"ZBB teamed up with SunPower and the University of California - San Diego to demonstrate the economic and operational benefits of combining PV with ZBB Energy zinc bromine flow battery storage technology rated at 300 kWh in a commercial building application. The project is funded by the California Public Utilities Commission (CPUC).\r\nThere were 6 ZBB EnerStore V3 Units, each rated at 25 kW/ 50 kWh. The battery was never fully commissioned because of a number of failures in critical operational tests. As of September 2014, the system was being dismantled and removed from the campus. \r\n\r\n","developer":"DNV Kema","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Commercialization Incentive\*","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"California Public Utilities Commission - California Solar Initiative (CSI)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":189,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/189/SunPower\_\_1\_.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/189/thumb\_SunPower\_\_1\_.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/189/partner\_SunPower\_\_1\_.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.8769207,"longitude":-117.2361478,"master\_project\_id":null,"name":"UC San Diego ZBB / SunPower Energy Storage","om\_contractor":"","organization":null,"owner\_1":"UC San Diego","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"DC efficiency up to 76%","primary\_reference":"http://www.prnewswire.com/news-releases-test/sunpower-awarded-18-million-research-grant-from-the-california-solar-initiative-rdd-program-102391659.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"Public University","research\_institution":"UC San Diego","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"California","status":"De-Commissioned","street\_address":"9500 Gilman Dr","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-08T21:25:10Z","updated\_at\_by\_admin":"2016-06-08T21:25:10Z","updated\_by":null,"updated\_by\_email":null,"utility":"UC San Diego Microgrid","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"ZBB Energy Corporation","zip":"92093"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Vacaville","commissioning\_on":"2022-08-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"d1fc@pge.com","contact\_info\_visible":false,"contact\_name":"Dave Fribush","contact\_phone":"415-973-7920","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-09T21:32:16Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This project is located at a substation near the Vaca Dixon Solar Plant of Vacaville, CA. The 2 MW / 14 MWh installation is used for load shaping, renewables integration, and ancillary services.","developer":"Pacific Gas and Electric Company","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":2800000.0,"funding\_amount\_2":8000000.0,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional RD&D","funding\_source\_2":"Private/Third Party Equity","funding\_source\_3":"","funding\_source\_details\_1":"California Energy Commission - Public Interest Energy Research Program (PIER)","funding\_source\_details\_2":"Pacific Gas and Electric","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":190,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/190/Battery-Storage-Photo-1.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/190/thumb\_Battery-Storage-Photo-1.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/190/partner\_Battery-Storage-Photo-1.jpg"}},"integrator\_company":"S&C Electric Company","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":38.3565773,"longitude":-121.9877444,"master\_project\_id":null,"name":"PG&E Vaca Battery Energy Storage Pilot Project","om\_contractor":"","organization":"","owner\_1":"Pacific Gas and Electric Company","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.greentechmedia.com/articles/read/energy-storage-at-grid-scale-pge-projects","primary\_reference1":"https://www.ngk.co.jp/nas/case\_studies/vaca\_dixon/","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Load Following (Tertiary Balancing)","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":2000,"size\_kwh":7.0,"size\_kwh\_hours":7,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T21:26:27Z","updated\_at\_by\_admin":"2015-12-22T02:57:08Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Phoenix","commissioning\_on":"2022-08-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"mike.ryan@cactusmailing.com; spencer.zirkelbach@sandc.com","contact\_info\_visible":false,"contact\_name":"Mike Ryan; Spencer Zirkelbach","contact\_phone":"866-443-1442 x222; ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"STMicroelectronics","contractor\_2":"S&C Electric Company","contractor\_3":"Arizona Public Service","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-12T18:17:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"STMicroelectronics’ Phoenix, AZ facility began the process of researching power protection alternatives for their plant in early 1999. This process culminated with the August 2000 installation of a 12,500-kilvolt-ampere (kVA) uninterruptible power supply (UPS) system operating at 12,470 volts (V), located in the utility substation feeding the plant.\r\n\r\nThe UPS system at STMicroelectronics in Phoenix utilizes five 2500-kVA energy storage units operating at the utility system voltage of 12,470 V. High-speed power-electronic components are utilized to create these modular energy storage units, which are then combined to produce a large-scale (>1,000 kilowatts) offline UPS system. This off-line system operates only upon the occurrence of a utility system disturbance.","developer":"STMicroelectronics","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":192,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/192/STMicroelectronics\_UPS.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/192/thumb\_STMicroelectronics\_UPS.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/192/partner\_STMicroelectronics\_UPS.JPG"}},"integrator\_company":"S&C Electric Company","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.643684,"longitude":-112.060672,"master\_project\_id":null,"name":"STMicroelectronics UPS System - S&C Electric","om\_contractor":"STMicroelectronics","organization":"","owner\_1":"STMicroelectronics","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The total time to sense an impending problem and then switch to the alternate source averages 1 to 4 milliseconds (less than 1/4 cycle).","primary\_reference":"http://www.sandc.com/edocs\_pdfs/EDOC\_001729.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10000,"size\_kwh":0.00833333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.5,"state":"Arizona","status":"Operational","street\_address":"1100 East Bell Road","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-27T23:49:46Z","updated\_at\_by\_admin":"2016-06-08T21:59:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"Arizona Public Service ","utility\_type":"Investor Owned","vendor\_company":"Delco","zip":""}},{"project":{"announcement\_on":"2022-08-16","approval\_status":1,"city":"Oahu","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Darren.pai@heco.com; lcutshaw@hawaii.edu","contact\_info\_visible":false,"contact\_name":"Darren Pai (HECO); Larry Cutshaw (HNEI)","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-12T20:57:31Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Altair Nanotechnologies Inc. was awarded a firm contract with the Hawai'i Natural Energy Institute (HNEI) of the University of Hawai'i at Manoa to supply a 1-MW ALTI-ESS energy storage system for a test of solar energy integration. The contract requires Altairnano to build, ship, install and commission its ALTI-ESS advanced energy storage system, and provide technical support and system monitoring and reporting over a period of three years.\r\n\r\nThe research project, funded through a grant from the Office of Naval Research, is designed to test the performance characteristics of the battery system and to demonstrate the effectiveness of battery storage technology to enable integration of solar energy into an electric grid. The test is expected to demonstrate solutions for integration of greater levels of renewable energy onto the grid, improving capacity utilization, and reducing dependency on fossil-fuel power generation while maintaining grid performance and reliability.","developer":"Hawaiian Electric Company and University of Hawaii - HNEI","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"The Office of Naval Research","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":194,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/194/altairnano\_waiawa.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/194/thumb\_altairnano\_waiawa.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/194/partner\_altairnano\_waiawa.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":21.4389123,"longitude":-158.0000565,"master\_project\_id":null,"name":"Waiawa High PV Penetration Circuit - Hawaiian Electric Company and University of Hawaii - HNEI","om\_contractor":"","organization":"Hawaiian Electric Company; University of Hawaii - HNEI","owner\_1":"Hawaiian Electric Company (HECO)","owner\_2":"University of Hawaii HNEI","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.hawaiicleanenergyinitiative.org/storage/media/5\_Hawaii%20Packs%20Punch%20with%20Battery%20Storage.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"The Hawaii Natural Energy Institute is an organized research unit of the School of Ocean and Earth Science and Technology (SOEST) of the University of Hawai‘i at Mānoa (UHM). The Institute performs research, conducts testing and evaluation, and manages public-private partnerships across a broad range of renewable and enabling technologies to reduce the State of Hawai‘i's dependence on fossil fuel. ","research\_institution":"Hawai'i Natural Energy Institute (HNEI)","research\_institution\_link":"http://www.hnei.hawaii.edu/","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Hawaii","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:01:52Z","updated\_at\_by\_admin":"2016-06-08T22:05:02Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Hawaiian Electric Industries","utility\_type":"Investor Owned","vendor\_company":"Altair Nanotechnologies Inc.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Gustine","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"; lbrougher@usbr.gov","contact\_info\_visible":false,"contact\_name":"Ron Milligan","contact\_phone":"916-979-2180","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-12T22:11:15Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The San Luis Pump-Generating Plant pumps Central Valley Project water for offstream storage. This joint Federal-State facility, located at San Luis Dam, lifts water by pump turbines from the O`Neill forebay into the San Luis Reservoir. During the irrigation season, water is released from San Luis Reservoir back through the pump-turbines to the forebay and energy is reclaimed. Each of the eight pumping-generating Francis Turbines has a capacity of 63,000 horsepower as a motor and 53,000 kilowatts as a generator. As a pumping station to fill San Luis Reservoir, each unit lifts 1,375 cubic feet per second at 290 feet total head. As a generating plant, each unit passes 1,640 cubic feet per second at the same head.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":196,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/196/Gianelli.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/196/thumb\_Gianelli.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/196/partner\_Gianelli.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.069105,"longitude":-121.077373,"master\_project\_id":null,"name":"San Luis (William R. Gianelli) Pumped Storage Hydroelectric Powerplant","om\_contractor":"","organization":"","owner\_1":"Bureau of Reclamation","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Each of the eight pumping-generating units has a capacity of 63,000 horsepower as a motor and 53,000 kilowatts as a generator.","primary\_reference":"https://www.usbr.gov/projects/pdf.php?id=55","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":424000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2017-10-24T01:41:43Z","updated\_at\_by\_admin":"2017-10-24T01:41:43Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Vernon","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"cjohn@gnb.com","contact\_info\_visible":false,"contact\_name":"Christopher John","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-12T22:49:11Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The 3.5 MWh BESS was located at the GNB lead smelting and recycling facility in Vernon, CA. GNB's primary concern was to assure the continual operation of lead-dust emission reduction systems during a power outage. Secondly, the system was used in a peak shaving capacity for a few hours a day. ","developer":"GNB Corporation","electronics\_provider":"General Electric","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":197,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/197/ver.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/197/thumb\_ver.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/197/partner\_ver.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.007122,"longitude":-118.1926828,"master\_project\_id":null,"name":"Vernon 5 MW / 3.5 MWh BESS","om\_contractor":"","organization":"","owner\_1":"GNB Corporation","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"For detailed performance see: http://www.sandia.gov/ess/docs/pr\_conferences/2001/ChristopherJohn.pdf","primary\_reference":"http://www.sandia.gov/ess/docs/pr\_conferences/2001/ChristopherJohn.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"Through an investigation managed by Sandia National Laboratories, GNB Technologies analyzed a variety of lead electrode compositions and developed manufacturing techniques to increase the Through an investigation managed by Sandia National Laboratories, GNB Technologies analyzed a variety of lead electrode compositions and developed manufacturing techniques to increase the Through an investigation managed by Sandia National Laboratories, GNB Technologies analyzed a variety of lead electrode compositions and developed manufacturing techniques to increase the density of the active materials in the positive and negative electrodes of the VRLA batteries.","research\_institution":"Sandia National Laboratory ","research\_institution\_link":"http://www.nrel.gov/docs/fy00osti/23795.pdf","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":5000,"size\_kwh":0.7,"size\_kwh\_hours":0,"size\_kwh\_minutes":42.0,"state":"California","status":"Operational","street\_address":"2600 S Indiana St","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Valve Regulated Lead-acid Battery","technology\_type\_l1":"Valve Regulated Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-22T22:00:36Z","updated\_at\_by\_admin":"2016-06-09T23:04:13Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"GNB Corporation","zip":"90058"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Shaver Lake","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Marc.Ulrich@sce.com","contact\_info\_visible":false,"contact\_name":"Marc Ulrich","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-16T16:56:54Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Eastwood Pumped Storage facility is part of the Big Creek Hydroelectric Project, which consists of 9 powerplants generating at a combined 1,000 MW. The Eastwood plant operates as a reservoir storage facility with the benefit of pumpback.\r\n\r\nThe Balsam Meadows Hydroelectric Project includes a 5,900-foot diversion tunnel connecting the existing Huntington-Pitman-Shaver Conduit, a 4,320-foot power tunnel, and a 7,500-foot Tailrace Tunnel with a 16-foot horseshoe section leading to Shaver Lake.","developer":"Southern California Edison","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":198,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/198/Eastwood.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/198/thumb\_Eastwood.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/198/partner\_Eastwood.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.104114,"longitude":-119.3176258,"master\_project\_id":null,"name":"Big Creek (John S. Eastwood) Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"Southern California Edison","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"https://www.sce.com/NR/rdonlyres/B82BAEAB-5EB7-47C6-A502-7ECB0AF63E4A/0/30.pdf","primary\_reference":"http://newsroom.edison.com/stories/big-creek-hydroelectric-system-produces-hardest-working-water-in-the-world","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":199800,"size\_kwh":17.6666666666667,"size\_kwh\_hours":17,"size\_kwh\_minutes":40.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-09T23:23:08Z","updated\_at\_by\_admin":"2016-06-09T23:23:07Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"San Ramon","commissioning\_on":"2022-03-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"mgravely@energy.state.ca.us","contact\_info\_visible":false,"contact\_name":"Mike Gravely","contact\_phone":"916-327-1370","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Beacon Power, LLC","contractor\_2":"Connected Energy Corp.","contractor\_3":"","cost\_CAPEX":1580000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-16T17:41:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Beacon's flywheel energy storage system (FESS) was located at Pacific Gas and Electric’s San Ramon research center. It employed seven 6-kilowatt-hour flywheels, each the size of a small refrigerator, ganged together to form a system that could absorb or discharge 100 kilowatts of power for 15 minutes.","developer":"Beacon Power, LLC","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":1233000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"California Energy Commission - Public Interest Energy Research Program (PIER)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":199,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/199/Beacon\_SanRamon.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/199/thumb\_Beacon\_SanRamon.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/199/partner\_Beacon\_SanRamon.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.7799273,"longitude":-121.9780153,"master\_project\_id":null,"name":"San Ramon Smart Energy Matrix FESS - Beacon Power, LLC","om\_contractor":"","organization":"California Energy Commission ","owner\_1":"California Energy Commission","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.ewh.ieee.org/r6/san\_francisco/pes/pes\_pdf/Flywheel\_Energy\_Storage.pdf","primary\_reference1":"http://www.renewableenergyworld.com/articles/2005/08/california-energy-commission-to-install-beacon-flywheel-34955.html","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2018-02-18T00:08:58Z","updated\_at\_by\_admin":"2016-06-10T00:02:15Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Pacific Gas and Electric Company","utility\_type":"Investor Owned","vendor\_company":"Beacon Power, LLC","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Sherrills Ford","commissioning\_on":"2022-05-11","companion":"1.0 MW solar PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Sherif.Abdelrazek@duke-energy.com ","contact\_info\_visible":false,"contact\_name":"Sherif Abdelrazek; Randy Wheeless","contact\_phone":"Office: 980.373.6992 Mobile: 704.773.9011; 704-382-8379; 800-559-3853 (24hr)","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-16T19:51:21Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The purpose of the Marshall Energy Storage System is to utilize energy generated from an adjacent 1.0 MW solar PV system to perform diurnal peak shaving for the upstream distribution substation. \r\n\r\nThe system has been performing 3 applications simultaneously since 2014. 1- PV capacity Firming (Smoothing) 2- Feeder Peak Load Shaving (Energy Time Shift) 3- Voltage Support\r\n\r\nSystem Components:\r\n-800 kWh, 250 kW Superior Lithium Polymer battery (Exergonix)\r\n-1.0 MVA Inverter/Storage Management System (S&C)\r\n-Interconnection to 12.47 kV medium voltage circuit\r\n-Located adjacent to a 1.0 MW solar facility\r\n\r\nDuke Energy's Smart Grid Demonstration activities include work in the Envision Energy pilot in Charlotte, North Carolina. The Envision Energy project consists of two substation scale energy storage installations, a 1 MW solar installation, two community energy storage locations, communication nodes, distribution devices, metering, home energy management systems, residential PV, intelligent EVSE and plug-in vehicles. The residential systems (PV, PEV, EVSE, CES, HEM, and smart appliances) will be installed at five employee homes. At its 2.1 GW Marshall coal-fired steam plant, Duke has deployed a 250 kW / 800 kWh super lithium polymer battery paired with a 1 MW solar PV array that went COD in April 2011. A key research goal of that project is to quantify efficiency impacts associated with storing the electricity for shorter or longer periods.\r\n","developer":"Duke Energy","electronics\_provider":"S&C Electric","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":201,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/201/mar.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/201/thumb\_mar.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/201/partner\_mar.png"}},"integrator\_company":"Duke Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.597325,"longitude":-80.964854,"master\_project\_id":null,"name":"Marshall Steam Station Energy Storage Project - Duke Energy","om\_contractor":"","organization":"Duke Energy","owner\_1":"Duke Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.nrel.gov/grid/assets/pdfs/second\_grid\_sim\_fenimore.pdf","primary\_reference1":"http://www.bizjournals.com/charlotte/print-edition/2012/11/09/duke-learning-to-store-power-from-sun.html?page=2","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":250,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"North Carolina","status":"Operational","street\_address":"Marshall Steam Station","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-29T00:42:14Z","updated\_at\_by\_admin":"2016-06-10T00:13:57Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Duke Energy","utility\_type":"Investor Owned","vendor\_company":"Kokam","zip":"28673"}},{"project":{"announcement\_on":"2022-08-06","approval\_status":2,"city":"Lake Elsinore","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"dmco@sonic.net","contact\_info\_visible":false,"contact\_name":"David Kates","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":800000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-16T20:15:47Z","created\_by\_id":91,"debt\_investor":"","decommissioning\_on":null,"desc":"The Lake Elsinore Advanced Pumped Storage (LEAPS) project is a 500 MW generation/600 MW load advanced pumped storage facility. The LEAPS project was licensed by Federal Energy Regulatory Commission (FERC) in Docket P–11858, and is now under limited additional review in FERC Docket P–14227.","developer":"The Nevada Hydro Company","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":202,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/202/lake\_and\_city\_view\_new.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/202/thumb\_lake\_and\_city\_view\_new.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/202/partner\_lake\_and\_city\_view\_new.jpg"}},"integrator\_company":"Control Technology Inc.","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.6680772,"longitude":-117.3272615,"master\_project\_id":null,"name":"Lake Elsinore Advanced Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"The Nevada Hydro Company","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"83% efficiency, ","primary\_reference":"http://www.renewableenergyworld.com/articles/2014/02/nevada-hydro-clears-up-interconnect-issues-for-600-mw-project.html","primary\_reference1":null,"projected\_lifetime":"75.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":500000,"size\_kwh":12.0,"size\_kwh\_hours":12,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Closed-loop Pumped Hydro Storage","technology\_type\_l1":"Closed-loop Pumped Hydro Storage","technology\_type\_l2":"Closed-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-10T00:26:25Z","updated\_at\_by\_admin":"2016-06-10T00:26:25Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Voith","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Hayward","commissioning\_on":"2022-07-30","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Kimberly.Nuhfer@netl.doe.gov","contact\_info\_visible":false,"contact\_name":"Ulrik Grape","contact\_phone":"510-782-7336","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":12393122.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-16T21:44:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-07-29","desc":"Seeo and its partners are demonstrating a large-scale prototype of a solid-state polymer electrolyte lithium-ion rechargeable battery for use in Smart Grid energy storage applications. Seeo seeks to validate this technology to address the needs of Community Energy Storage Systems—small (less than 100 kW) distributed energy storage systems alongside padmounted and pole-mounted transformers. The 25kWh battery pack is more than a 50% improvement in weight and energy density; has 10-15+ year operating life with 3,000-5,000 or more cycles; has no volatile or flammable components; and will be 35% cheaper than existing lithium-ion batteries. This approach allows independent control over mechanical and electrical properties. Seeo’s cell design couples a solid lithium metal anode with a conventional porous lithium iron phosphate cathode yielding a pouch cell energy density of 235 Wh/kg and 410 Wh/l. The cell can withstand temperatures as high as 150°C and voltages of 10 volts without incident. An independent analysis of the environmental and economic impact of battery improvement will also be conducted.\r\n\r\nGoals/Objectives\r\n• Develop and deploy a prototype battery system that validates Seeo’s technology\r\n• Reduce the cost of battery cells by $100-$300/kWh\r\n• Improve battery installation and maintenance\r\n• Produce a plan for manufacturing and commercializing the technology at utility scale\r\n\r\nKey Milestones\r\n• Polymer temperature and voltage assessment complete (September 2011)\r\n• Produce a total of 1,000 cells with optimized power and energy (December 2011)\r\n• Finalize Pack Design (June 2012)\r\n• Prototype pack assembly complete (January 2013)\r\n• Complete prototype pack performance testing and validation (September 2013)\r\n\r\nPROJECT DURATION: 07/30/10–07/29/2014","developer":"Seeo, Inc.","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":6196060.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":204,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/204/seeo.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/204/thumb\_seeo.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/204/partner\_seeo.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.6688205,"longitude":-122.0807964,"master\_project\_id":null,"name":"Seeo Inc. Solid State Batteries for Grid-Scale Energy Storage","om\_contractor":"","organization":null,"owner\_1":"Seeo, Inc.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"https://www.smartgrid.gov/files/Seeo\_SolidStateBatteries\_FTR\_DE-OE0000223\_0.pdf","primary\_reference":"http://www.smartgrid.gov/sites/default/files/Seeo\_OE0000223\_rev\_Oct2011%20final.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"UC Berkeley","research\_institution\_link":"http://berkeley.edu/research/","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Residential (Reliability)","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"California","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-15T19:11:20Z","updated\_at\_by\_admin":"2016-06-15T19:11:20Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Seeo, Inc.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Lyons","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-11-01","contact\_city":"","contact\_country":"","contact\_email":"rpedraza@altairnano.com","contact\_info\_visible":false,"contact\_name":"Robert Pedraza","contact\_phone":"(775) 858-3702","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"AES Energy Storage","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":2000.0,"country":"United States","created\_at":"2013-04-16T22:10:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Following the successful completion of the IPL demonstration, in November 2008, AES relocated one of the 1 MW Altairnano systems from the Indianapolis Power and Light substation facility to the parking lot of PJM Interconnection's headquarters building. That unit has been wired into a feeder line and has been selling frequency regulation into the PJM Ancillary Service Market since January 2009. \r\n\r\nAfter designing specialized control software, the batteries have thus far responded to the \"reg up\" and \"reg down\" automatic gain control (AGC) signals from the RTO, charging and discharging accordingly. The unit was tested for power and energy capacity in May 2010 after more than 8,000 operating hours. Energy degradation was approximately 1% while the power degradation was not significant. Altairnano estimates the battery will be able to deliver the required 1 MW contract capacity for over 20 years based on the current PJM duty cycle.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":205,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/205/altairnano.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/205/thumb\_altairnano.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/205/partner\_altairnano.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.4776121,"longitude":-75.7667739,"master\_project\_id":null,"name":"Altairnano-PJM Lyons Li-ion Battery Ancillary Services Demo","om\_contractor":"","organization":"Altair Nanotechnologies Inc","owner\_1":"AES Energy Storage","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"90% round trip efficiency (AC-AC)","primary\_reference":"https://gigaom.com/2011/05/06/aes-building-worlds-largest-lithium-ion-grid-battery-projects/","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Pennsylvania","status":"Operational","street\_address":"102 Deka Road","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-17T01:52:10Z","updated\_at\_by\_admin":"2016-06-13T20:14:02Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Altair Nanotechnologies Inc.","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Kansas City","commissioning\_on":"2022-06-28","companion":"","construction\_on":null,"contact\_city":"Kansas City","contact\_country":"United States","contact\_email":"ed.hedges@kcpl.com; David.Szucs@netl.doe.gov","contact\_info\_visible":false,"contact\_name":"Ed Hedges; David Szucs","contact\_phone":"816-556-238","contact\_state":"Missouri","contact\_street\_address":"1201 Walnut","contact\_zip":"64106-2124","contractor\_1":"S&C Electric Company","contractor\_2":"","contractor\_3":"","cost\_CAPEX":49830280.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-18T22:06:10Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Kansas City Power and Light (KCP&L) and its partners are demonstrating an end-to-end SmartGrid built around a major SmartSubstation with a local distributed control system based on IEC 61850 protocols and control processors—that includes advanced generation, distribution, and customer technologies. Co-located renewable energy sources, such as solar and other parallel generation, will be placed in the demonstration area and will feed into the energy grid. The demonstration area consists of ten circuits served by one substation across two square miles with 14,000 commercial and residential customers. Part of the demonstration area contains the Green Impact Zone, 150 inner-city blocks that suffers from high levels of unemployment, poverty, and crime. Efforts in the Green Impact Zone will focus on training residents to implement weatherization and energy efficiency programs to reduce utility bills, conserve energy, and create jobs. KCP&L’s SmartGrid program will provide area businesses and residents with enhanced reliability and efficiency through real-time information about electricity supply and demand. It will enable customers to manage their electricity use and save money.\r\n\r\nKCP&L is implementing a 1 MW / 1 MWh Li-ion battery system from Dow Kokam as part of this initiative.\r\n\r\nGoals/Objectives\r\n• Implement and demonstrate a next-generation, end-to-end SmartGrid\r\n• Demonstrate, measure, and report on the costs, benefits, and business model feasibility of the demonstrated technologies\r\n• Identify issues and gaps in technological standards\r\n\r\nKey Milestones\r\n• Midtown Substation commissioned (October 2011)\r\n• ADA circuits commissioned (June 2012)\r\n• Smart EndUse implementation (March 2013)\r\n• Integrated system test and demonstration (September 2013)","developer":"Kansas City Power & Light","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":23940112.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - Smart Grid Investment Grants (part of ARRA)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":210,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/210/kpcl.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/210/thumb\_kpcl.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/210/partner\_kpcl.png"}},"integrator\_company":"S&C Electric Company","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"SPP","latitude":39.0402879,"longitude":-94.5710409,"master\_project\_id":null,"name":"Kansas City Green Impact Zone SmartGrid - Kansas City Power and Light","om\_contractor":"","organization":"Kansas City Power and Light; National Energy Technology Laboratory","owner\_1":"Kansas City Power & Light","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"https://www.smartgrid.gov/project/kansas\_city\_power\_and\_light\_green\_impact\_zone\_smartgrid\_demonstration.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"Kansas City Power & Light and its partners is demonstrating an end-to-end SmartGrid — built around a major SmartSubstation with a local distributed control system based on IEC 61850 protocols and control processors—that includes advanced generation, distribution, and customer technologies. Co-located renewable energy sources, such as solar and other parallel generation, will be placed in the demonstration area and will feed into the energy grid. The demonstration area consists of ten circuits served by one substation across two square miles with 14,000 commercial and residential customers. Part of the demonstration area contains the Green Impact Zone, 150 inner-city blocks that suffers from high levels of unemployment, poverty, and crime. Efforts in the Green Impact Zone will focus on training residents to implement weatherization and energy efficiency programs to reduce utility bills, conserve energy, and create jobs. KCP&L’s SmartGrid program will provide area businesses and residents with enhanced reliability and efficiency through real-time information about electricity supply and demand. It will enable customers to manage their electricity use and save money. ","research\_institution":"National Energy Technology Laboratory","research\_institution\_link":"https://www.smartgrid.gov/sites/default/files/kansas-city-pl-oe0000221-final\_0.pdf","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_5":"Grid-Connected Residential (Reliability)","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Missouri","status":"Operational","street\_address":"4724 Tracy Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-17T01:25:15Z","updated\_at\_by\_admin":"2016-06-13T20:46:40Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Kansas City Power & Light","utility\_type":"Investor Owned","vendor\_company":"Kokam","zip":"64110"}},{"project":{"announcement\_on":"2022-10-04","approval\_status":1,"city":"Foggia","commissioning\_on":"2022-04-28","companion":"Primary Substation","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"christian.noce@enel.com","contact\_info\_visible":false,"contact\_name":"Christian Noce, Enel","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-04-18T22:11:26Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The substation is located in Puglia, an area with a high level of variable and intermittent power from renewable energy sources that can cause reverse power flows on the high/medium voltage transformers. The role of Saft’s batteries in the energy storage system is to reduce the variability of power flow as well as allowing for more controllable energy exchange between the substation and the Italian national grid. 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Inc.","contractor\_2":"General Electric Co.","contractor\_3":"Westinghouse","cost\_CAPEX":75889000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-19T16:34:22Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Located in rock in the left abutment near the axis of Oroville Dam, Edward Hyatt Powerplant is an underground, hydroelectric, pumping-generating facility. Construction of the plant began in 1964 and was completed in 1967.\r\n\r\nHyatt Powerplant maximizes power production through a pumped-storage operation where water, released for power in excess of local and downstream requirements, is returned to storage in Lake Oroville during off-peak periods and is used for generation during peak power demands.\r\n\r\nWater from the lake is conveyed to the units through penstocks and branch lines. After passing through the units, water is discharged through the draft tubes to one free surface and one full-flow tailrace tunnel.\r\n\r\nThe facility was named for Edward Hyatt, who was State Engineer (1927-1950) of the Division of Water Resources under the Department of Public Works. The Division was the predecessor to the Department of Water Resources.","developer":"California Department of Water Resources","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":212,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/212/Hyatt-people.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/212/thumb\_Hyatt-people.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/212/partner\_Hyatt-people.jpg"}},"integrator\_company":"California Department of Water Resources","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":39.5137752,"longitude":-121.556359,"master\_project\_id":null,"name":"Edward Hyatt (Oroville) Power Plant","om\_contractor":"California Department of Water Resources","organization":null,"owner\_1":"California Department of Water Resources","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Installed Capacity: 819 mVA, 16,950 cfs (generation) 519,000 HP, 5,610 cfs (pumping)","primary\_reference":"http://www.water.ca.gov/swp/facilities/Oroville/hyatt.cfm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":819000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-13T23:38:38Z","updated\_at\_by\_admin":"2016-06-13T23:38:38Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"","zip":"95965"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Oroville","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"Sacramento","contact\_country":"United States","contact\_email":"info@water.ca.gov","contact\_info\_visible":false,"contact\_name":"California Department of Water Resources","contact\_phone":"916-653-5791","contact\_state":"California","contact\_street\_address":"1416 Ninth St.","contact\_zip":"95814","contractor\_1":"California Department of Water ResourcesCalifornia Department of Water Resources","contractor\_2":"Allis - Chalmers Mfg. Inc.","contractor\_3":"Westinghouse","cost\_CAPEX":24200000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-19T16:42:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-11-22","desc":"Located about four miles west of the city of Oroville in Butte County, Thermalito Pumping-Generating Plant is a principal feature of the Oroville-Thermalito pumped storage power complex. A pumping-generating plant, the facility is operated in tandem with Hyatt Powerplant and Thermalito Diversion Dam Powerplant to produce power.\r\n\r\nWater released for power in excess of local and downstream requirements is conserved by pumpback operation during off-peak hours through both power plants into Lake Oroville to be subsequently released for power generation during periods of peak power demand. Construction on the plant began in 1964 and was completed in 1969, with operations starting in 1968.\r\n\r\n\*\*\*The Thermalito Pumping - Generating Plant suffered significant damage from a fire on November 22, 2022 - further details on the incident can be found here:\r\n\r\nhttps://conferences.wsu.edu/forms/hrs/HRS14/2014HRS/Lectures/Thermalito.pdf","developer":"California Department of Water Resources","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":213,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/213/Thermalito\_Pumping-generating.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/213/thumb\_Thermalito\_Pumping-generating.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/213/partner\_Thermalito\_Pumping-generating.jpg"}},"integrator\_company":"California Department of Water Resources","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":39.5137752,"longitude":-121.556359,"master\_project\_id":null,"name":"Thermalito Pumping - Generating Plant","om\_contractor":"California Department of Water Resources","organization":null,"owner\_1":"California Department of Water Resources","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Installed Capacity: 120 MVA, 17,400 cfs (generation) 120,000 HP, 9,120 cfs (pumping)","primary\_reference":"http://www.water.ca.gov/swp/facilities/Oroville/thermalito.cfm","primary\_reference1":null,"projected\_lifetime":"75.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":120000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Offline/Under Repair","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-13T23:41:01Z","updated\_at\_by\_admin":"2016-06-13T23:41:01Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Leadville","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"boswell@hydro.com","contact\_info\_visible":false,"contact\_name":"Ott Boswell, Plant Supervisor","contact\_phone":"719-486-2325","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":17932.0,"country":"United States","created\_at":"2013-04-19T17:03:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Mt. Elbert Pumped-Storage Powerplant is located in Lake County, CO on the north shore of Twin Lakes. It is approximately twenty miles southwest of Leadville, CO. It is at the foot of Mt. Elbert, Colorado’s highest peak.\r\n\r\nMt. Elbert is the only federal powerplant on the Fryingpan-Arkansas Project and is largest hydroelectric power plant in Colorado. It began operations in 1981.\r\n\r\nThe Mt. Elbert Pumped-Storage Powerplant is an all-concrete structure equivalent to a 14-story building. Most of the structure is below ground. Water from the Forebay above drops through two penstocks 445 feet to the powerplant where two turbine-generators develop 200,000 kilowatts of electrical power. Mt. Elbert’s two units are also designed to operate as a 170,000-horsepower electric motor to drive the turbines in reverse and pump the same water back up to the forebay. This pumping mode is normally utilized during early morning hours when power demands are low. The pump-back storage principle is advantageous because the generating units can be started quickly and adjustments made rapidly to respond to varying daily and seasonal power demands.\r\n\r\nAvailability Factor: 64.5, Production Cost as Percentage of Wholesale Firm Rate: 8.14%, Wholesale Firm Rate (Mills/kWh): 23.9","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":214,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/214/elbert.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/214/thumb\_elbert.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/214/partner\_elbert.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.094098,"longitude":-106.352352,"master\_project\_id":null,"name":"Mount Elbert Power Plant","om\_contractor":"","organization":null,"owner\_1":"Bureau of Reclamation","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"http://www.usbr.gov/projects//ImageServer?imgName=Doc\_1240941796482.pdf","primary\_reference":"http://www.usbr.gov/projects/Powerplant.jsp?fac\_Name=Mount+Elbert+Powerplant","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Load Following (Tertiary Balancing)","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200000,"size\_kwh":12.0,"size\_kwh\_hours":12,"size\_kwh\_minutes":0.0,"state":"Colorado","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-13T23:44:34Z","updated\_at\_by\_admin":"2016-06-13T23:44:34Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Apache Junction","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"psoeth@usbr.gov","contact\_info\_visible":false,"contact\_name":"Peter Soeth","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Phelps-Dodge Corporation","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-19T17:31:29Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In 1969, SRP initiated its Hydroelectric Expansion and Frequency Unification (HEFU) program to increase hydroelectric generating capacity at facilities on the Salt River. This program included the installation of pumped storage units at Mormon Flat Dam in 1971 and at Horse Mesa Dam in 1972. The HEFU program also provided for converting the conventional hydroelectric generating facilities at the dams on the Salt River from the outmoded 25-hertz (Hz) to the modern frequency of 60 Hz and in 1973, a new 60-Hz, 36-MW generating unit was installed at Theodore Roosevelt Dam, which replaced the existing 25-Hz units.\r\n\r\nThe Horse Mesa dam has three conventional hydroelectric generating units rated at a total of 32,000 kW, and a pumped storage unit rated at 97,000 kW added in 1972.","developer":"The Salt River Valley Water Users' Association","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":215,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/215/HorseMesa.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/215/thumb\_HorseMesa.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/215/partner\_HorseMesa.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.590733,"longitude":-111.343789,"master\_project\_id":null,"name":"Horse Mesa Pumped Hydro Storage","om\_contractor":"The Salt River Valley Water Users' Association","organization":null,"owner\_1":"Bureau of Reclamation","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.usbr.gov/projects/Facility.jsp?fac\_Name=Horse+Mesa+Dam","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":97000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Arizona","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-13T23:53:49Z","updated\_at\_by\_admin":"2016-06-13T23:53:49Z","updated\_by":null,"updated\_by\_email":null,"utility":"Salt River Project","utility\_type":"Public Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Chattanooga","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"tvainfo@tva.com","contact\_info\_visible":false,"contact\_name":"Tennessee Valley Authority","contact\_phone":"(865) 632-2101","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":300000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-19T18:26:23Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Raccoon Mountain Pumped-Storage Plant is located in southeast Tennessee on a site that overlooks the Tennessee River near Chattanooga.\r\n\r\nDeep in the heart of the Cumberland Plateau sits the Raccoon Mountain pumped storage plant. After an extensive upgrade in 1999, it is now TVA's largest hydro facility, with a rated output of more than 1,600 MW.\r\n\r\nThe plant, which is on the Tennessee River about 6 miles west of Chattanooga, has four pump/turbine units that together would cover a football field. The 528-acre reservoir at the top of Raccoon Mountain holds about 60 million cubic yards of water behind a dam that is 8,500 feet long and 230 feet high. Deep below the lake's surface, hundreds of feet below the mountaintop, is the powerhouse. At times of low power demand, giant turbines pump water up to the reservoir at a rate of seven million gallons per minute. This huge energy storage facility gives TVA much of the flexibility it needs to balance supply and demand on its extensive system.\r\n\r\nThe plant was idled in March 2012 due to cracks in the generators' rotors. The plant came entirely back on line in April 2014.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":216,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/216/569px-Raccoon\_Mountain\_Pumped-Storage\_Plant.svg.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/216/thumb\_569px-Raccoon\_Mountain\_Pumped-Storage\_Plant.svg.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/216/partner\_569px-Raccoon\_Mountain\_Pumped-Storage\_Plant.svg.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.0198163,"longitude":-85.3688937,"master\_project\_id":null,"name":"Raccoon Mountain Pumped Storage Plant","om\_contractor":"","organization":null,"owner\_1":"Tennessee Valley Authority","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"The facility can generate electricity for up to 22 hours before needing to draw water up again for 28 hours to fill the mountaintop reservoir.","primary\_reference":"https://tva.com/Energy/Our-Power-System/Hydroelectric/Raccoon-Mountain","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1652000,"size\_kwh":22.0,"size\_kwh\_hours":22,"size\_kwh\_minutes":0.0,"state":"Tennessee","status":"Operational","street\_address":"Cummings Hwy.","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-14T19:42:04Z","updated\_at\_by\_admin":"2016-06-14T19:42:04Z","updated\_by":null,"updated\_by\_email":null,"utility":"Tennessee Valley Authority","utility\_type":"Federally Owned","vendor\_company":"","zip":"37419"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Lewiston","commissioning\_on":"2022-01-28","companion":"","construction\_on":"2022-03-18","contact\_city":"","contact\_country":"","contact\_email":"mitchell.m@nypa.gov; paul.demichele@nypa.gov","contact\_info\_visible":false,"contact\_name":"Michael Mitchell; Paul DeMichele","contact\_phone":"914-681-6428","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Ferguson Electric","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-19T19:36:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Niagara project, located about 4 1/2 miles downstream from the Falls, consists of two main facilities: the Robert Moses Niagara Power Plant, with 13 turbines, and the Lewiston Pump-Generating Plant, with 12 pump-turbines. In between the two plants is a forebay capable of holding about 740 million gallons of water; behind the Lewiston plant, a 1,900-acre, 22 billion gallon reservoir holds additional supplies of this liquid fuel.\r\n\r\nWater is diverted from the Niagara River—up to 375,000 gallons a second—and conveyed through conduits under the City of Niagara Falls to Lewiston. From there, water flowing through the Robert Moses plant spins turbines that power generators, converting this mechanical energy into electrical energy.\r\n\r\nAt night, when electricity demand is low, the Lewiston units operate as pumps, transporting water from the forebay up to the plant's reservoir.\r\n\r\nDuring the daytime, when electricity use peaks, the Lewiston pumps are reversed and become generators, similar to those at the Moses plant. In this way, the water can be used to produce electricity twice, increasing production and efficiency.\r\n\r\nTo balance the need for power with a desire to preserve the beauty of Niagara Falls, the United States and Canada signed a treaty in 1950 that regulates the amount of water diverted for hydroelectricity production. On average, more than 200,000 cubic feet per second (cfs), or 1.5 million gallons of water a second, flow from Lake Erie into the Niagara River. The 1950 pact requires that at least 100,000 cfs of water spill over the Falls during the daylight hours in the tourist season, April through October. This flow may be cut in half at night during this period and at all times the rest of the year.\r\n\r\n\*\*\* Update on progress of facility upgrade:\r\n\r\nhttps://www.nypa.gov/NYPAPressCenter/PressRelease/News/NYPA%20Completes%20Upgrade%20on%20First%20of%2012%20TurbineGenerator%20Units%20at%20Niagara%20Plant%E2%80%99s%20Lewiston%20PumpGenerating%20Facility.html","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":217,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/217/niagara1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/217/thumb\_niagara1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/217/partner\_niagara1.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":43.142984,"longitude":-79.021806,"master\_project\_id":null,"name":"Lewiston Pump-Generating Plant","om\_contractor":"","organization":null,"owner\_1":"New York Power Authority (NYPA)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.nypa.gov/facilities/niagara.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":240000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"New York","status":"Operational","street\_address":"5477 Military Rd.","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-14T00:25:19Z","updated\_at\_by\_admin":"2016-06-14T00:25:19Z","updated\_by":null,"updated\_by\_email":null,"utility":"New York Power Authority (NYPA)","utility\_type":"Public Owned","vendor\_company":"Hitachi","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Ludington","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-07-01","contact\_city":"","contact\_country":"","contact\_email":"newsroom@consumersenergy.com","contact\_info\_visible":false,"contact\_name":"Dan Bishop, Media Relations at Consumers Energy","contact\_phone":"(517) 788-2395","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-19T20:04:24Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Ludington Pumped Storage Plant sits on a 1,000-acre site along the Lake Michigan shoreline. The plant was built between 1969-73 and is jointly owned by Consumers Energy and Detroit Edison, and operated by Consumers Energy.\r\nThe plant contributes directly to local governments about $11 million in annual property taxes. Revenue from plant operations, maintenance and overhauls also contribute significant sums to the local economy. Local residents still refer to the plant as “The Project”.\r\n\r\nOne of the world’s biggest electric “batteries”, Ludington can provide energy at a moment’s notice. Its ability lies in its 27-billion gallon reservoir and a set of six turbines that drive electric generators. Those same turbines double as giant water pumps to fill the reservoir with water from Lake Michigan.\r\nAt night, when electric demand is low, Ludington’s reversible turbines pump water 363 feet uphill from Lake Michigan. The water is pumped through six large pipes, or “penstocks”, to the 842-acre reservoir. During the day, when electric demand is high, the reservoir releases water to flow downhill through the penstocks. The flowing water turns turbines and generators in the powerhouse to make electricity.\r\nThe plant can generate up to 1,872 megawatts — enough electricity to serve a community of 1.4 million residential customers. The output is more than double the capacity of any single unit on Consumers Energy’s system.\r\nLudington’s relatively simple technology enables the plant to respond quickly to the daily, weekly and seasonal highs and lows of Michigan’s energy demand. The plant also saves customers money by enabling Consumers Energy to avoid the expensive spot market when customer demand exceeds the capacity of the company’s baseload plants. The immense size of Ludington and its six-unit design offers flexibility in balancing customer demand with electric output on a moment’s notice. \r\n\r\nConsumers Energy and Detroit Edison announced an $800 million upgrade on February 7 2011. The six year project would begin in 2013 and extend the plant's life by at least forty years and upgrade the generating capacity from 1,872 megawatts to 2,172 megawatts.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":218,"image\_1":{"url":"../../images/218/consumers-energy-pumped-storage-facility-located-in-ludington-michigan.jpg","thumb":{"url":"../../images/218/thumb\_consumers-energy-pumped-storage-facility-located-in-ludington-michigan.jpg"},"partner":{"url":"../../images/218/partner\_consumers-energy-pumped-storage-facility-located-in-ludington-michigan.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"MISO","latitude":43.894481,"longitude":-86.44311,"master\_project\_id":null,"name":"Ludington Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"Consumers Energy","owner\_2":"Detroit Edison","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":" All six units can quickly produce 312 megawatts each during peak demand periods. The plant’s turbines are rated at 433,000 horsepower — more than an aircraft carrier engine.","primary\_reference":"http://www.consumersenergy.com/content.aspx?id=1830","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Load Following (Tertiary Balancing)","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1872000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Michigan","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-14T00:31:37Z","updated\_at\_by\_admin":"2016-06-14T00:31:37Z","updated\_by":null,"updated\_by\_email":null,"utility":"Consumers Energy","utility\_type":"Public Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Northfield","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"Northfield","contact\_country":"United States","contact\_email":"Douglas.Bennet@gdfsuezna.com","contact\_info\_visible":false,"contact\_name":"Doug Bennet","contact\_phone":"(413) 659-4415","contact\_state":"Massachusettes","contact\_street\_address":"99 Millers Falls Road","contact\_zip":"01360","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":140000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-19T20:54:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Located in Northfield, Massachusetts, approximately five and one-half miles up the Connecticut River from Turners Falls Dam, the 1,080 megawatt plant is entirely underground and does not depend upon the natural flow of the river for operation. Utilizing energy that is generated at nuclear and the more efficient of our fossil plants, water from the lower reservoir is pumped to an upper reservoir during periods of low power demand. The water is stored in the upper reservoir and then, at times of high electric demand, is released down a 1,100-foot-long pressure shaft to power a turbine generator and continues to the lower reservoir where it is stored until it again resumes its cycle to the upper reservoir.\r\n\r\nThe 20-mile stretch of the Connecticut River, extending from the dam at Turners Falls north to the Vernon Dam in Vermont, serves as the station's lower reservoir.\r\n\r\nThe man-made 300-acre upper reservoir, 800 feet above the river, is capable of storing 5.6 billion gallons of water with an estimated power potential of 8,500 MWh.\r\n\r\nThe underground powerhouse includes four large reversible turbines, each capable of pumping 27,000 gallons of water per second. The powerhouse is accessible through a 2,500-foot-long tunnel. Seven hundred feet below the surface, the cavern is longer than a football field and higher than a ten-story building.","developer":"Northeast Utilities","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":219,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/219/northfield\_mtn.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/219/thumb\_northfield\_mtn.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/219/partner\_northfield\_mtn.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.610827,"longitude":-72.471313,"master\_project\_id":null,"name":"Northfield Mountain Pumped Storage Hydroelectricity Facility ","om\_contractor":"FirstLight Power Resources (GDF Suez Energy North America)","organization":"","owner\_1":"FirstLight Power Resources (GDF Suez Energy North America)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://gdfsuezna.com/northfield-mountain/","primary\_reference1":"http://www.wbur.org/bostonomix/2016/12/02/northfield-mountain-hydroelectric-station","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1168000,"size\_kwh":7.58333333333333,"size\_kwh\_hours":7,"size\_kwh\_minutes":35.0,"state":"Massachusetts","status":"Operational","street\_address":"99 Millers Falls Road","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2018-01-31T22:20:56Z","updated\_at\_by\_admin":"2016-06-14T00:44:37Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":"01360"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"West Holtwood","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Kenneth.Poletti@exeloncorp.com","contact\_info\_visible":false,"contact\_name":"Kenneth Poletti","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-19T21:09:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The 8-unit power station provides 1,070 megawatts (MW) of electricity by damming the Muddy Run ravine from its mouth. The station’s output is critical to meeting the dynamic peak electricity demands on the area’s regional power grid on hot summer afternoons. To generate electricity, the water in the upper reservoir at Muddy Run is used to fuel the turbines, flowing into the Conowingo Pond, a 14-mile stretch of the Susquehanna River in Maryland. As electricity demand decreases, at night, the units are reversed and used as pumps to fill the upper reservoir for subsequent peak-demand periods.\r\n\r\nMuddy Run has provided electric power to the regional transmission system since commercial operation began in 1966. At the time, it was the largest pumped-storage hydroelectric power plant in the world. The general plant configuration remains the same as the original construction, however, the turbines and generators have been recently refurbished.","developer":"Westinghouse Electric Company","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":220,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/220/LargeMuddyRun.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/220/thumb\_LargeMuddyRun.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/220/partner\_LargeMuddyRun.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.847457,"longitude":-76.2906717,"master\_project\_id":null,"name":"Muddy Run Pumped Hydro Storage","om\_contractor":"Susquehanna Electric Company","organization":null,"owner\_1":"Exelon Generation","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The electrical generating equipment consists of eight motor-generator units, each rated at 13.8 kilovolts (kV), 3 phase, 60 cycle, 100 MW at 0.9 power factor at a temperature rise of 140°F (60°C) as a generator. Switching and control equipment are connected to the eight motor-generators in pairs to the four 13.8-220 kV transformers. A 13.8 kV circuit breaker is provided on each motor-generator.","primary\_reference":"http://www.exeloncorp.com/locations/power-plants/muddy-run-pumped-storage-facility","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1070000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Pennsylvania","status":"Operational","street\_address":"172 Bethesda Church Rd.","systems\_integration":"","technology\_classification":"Open Loop Pumped Hydro Storage","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-14T22:03:58Z","updated\_at\_by\_admin":"2016-06-14T22:03:58Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"17532"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Oconee County","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"randy.wheeless@duke-energy.com; Kim.Crawford@duke-energy.com","contact\_info\_visible":false,"contact\_name":"Randy Wheeless; Kim Crawford","contact\_phone":"704-382-8379; Kim - w: 919.546.6305 | c: 919.417.2245 ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-19T21:59:29Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Bad Creek Hydroelectric Station is a 1,065-megawatt pumped-storage facility located in Oconee County, eight miles north of Salem, S.C. The four-unit station began generating electricity in 1991, and is the largest hydroelectric station on the Duke Energy system. It is named for the two streams, Bad Creek and West Bad Creek, which were dammed to create the Bad Creek reservoir.\r\n\r\nThe Bad Creek facility utilizes two reservoirs (or lakes) to generate electricity: an upper reservoir and a lower reservoir. Water stored in an upper lake is released into underground power tunnels. The water rushes down the tunnels, driving huge turbines, which are underground at the base of a dam. The spinning turbines are connected to large generators, which produce the electricity. The water then flows through draft tubes into a lower lake.\r\n\r\nA pumped-storage hydroelectric station uses the same water over and over again, making more efficient use of water resources. When demand for electricity is low, operators can refill the lake, as if they were “recharging” a battery. Using power from other generating stations, the generators act as electric motors spinning the huge turbines backward. This pumps water back up the power tunnels into the upper lake. Water is generally pumped back to the upper reservoir at night and on weekends.\r\n\r\nWith the reservoir at full-pond elevation and generating with all four units, Bad Creek can generate for 24 hours within its maximum 160’ drawdown. Full pond elevation is 2310 MSL (Mean Sea Level).","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":221,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/221/553px-LakeJocassee.svg.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/221/thumb\_553px-LakeJocassee.svg.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/221/partner\_553px-LakeJocassee.svg.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.010984,"longitude":-83.00986,"master\_project\_id":null,"name":"Bad Creek Pumped Hydro Storage","om\_contractor":"","organization":null,"owner\_1":"Duke Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.duke-energy.com/power-plants/pumped-storage-hydro/bad-creek.asp","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1065000,"size\_kwh":24.0,"size\_kwh\_hours":24,"size\_kwh\_minutes":0.0,"state":"South Carolina","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-20T17:40:49Z","updated\_at\_by\_admin":"2016-06-20T17:40:49Z","updated\_by":null,"updated\_by\_email":null,"utility":"Duke Energy","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Pickens County","commissioning\_on":"2021-12-19","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"randy.wheeless@duke-energy.com","contact\_info\_visible":false,"contact\_name":"Randy Wheeless","contact\_phone":"704-382-8379","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-19T22:06:47Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The four-unit Jocassee Hydroelectric Station is a 710-megawatt pumped-storage generating facility located in Pickens County, S.C. The facility works much like a conventional hydroelectric station, except that it can reverse turbines and pump back previously used water from a lower lake to store potential energy for later.\r\n\r\nThe Jocassee facility typically generates power during times of peak electric demand. In the Carolinas, peaks are usually on hot summer afternoons and cold winter mornings during the work week. Water power uses no fuel in the generation of electricity and so has very low operating costs.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":222,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/222/553px-LakeJocassee.svg.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/222/thumb\_553px-LakeJocassee.svg.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/222/partner\_553px-LakeJocassee.svg.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.960334,"longitude":-82.916851,"master\_project\_id":null,"name":"Jocassee Pumped Hydro Storage","om\_contractor":"","organization":"","owner\_1":"Duke Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"The average annual generation from the Jocassee Development is 811,000 megawatt hours and the pumping energy requirement is 988,000 megawatt hours.","primary\_reference":"http://www.duke-energy.com/power-plants/pumped-storage-hydro/jocassee.asp","primary\_reference1":"http://www.pennenergy.com/articles/pe/2016/08/duke-energy-pumped-storage-hydro-project-receives-30-year-license-extension.html","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":710000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"South Carolina","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-08-22T19:54:40Z","updated\_at\_by\_admin":"2016-08-22T19:54:40Z","updated\_by":null,"updated\_by\_email":null,"utility":"Duke Energy","utility\_type":"Investor Owned","vendor\_company":"Voith Hydro","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Rowe","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"matthew.johnson@brookfieldrenewable.com","contact\_info\_visible":false,"contact\_name":"Matthew Johnson","contact\_phone":"802.423.7015","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-19T23:17:01Z","created\_by\_id":1,"debt\_investor":"The Bank of Nova Scotia and Canadian Imperial Bank of Commerce","decommissioning\_on":null,"desc":"The Bear Swamp complex, completed in 1974, is on the Deerfield River in Rowe and Florida, Massachusetts. Bear Swamp comprises an underground pumped storage generating station and two conventional hydroelectric stations. \r\n\r\nNew England Power Company developed Bear Swamp to meet the expanded peak load periods when New England's electricity consumers place the heaviest demand on the system. In the process, a large tract of land on both banks of the river was opened to public recreational use. \r\n\r\nThe major generating units are twin, reversible pump turbines planted deep within the hillside on the south bank. Operating in unison, they produce a maximum of 600 megawatts of peaking power. During low demand periods, they are reversed to pump water 770 feet from the lower to the upper reservoir to a height of 1600 feet above sea level for storage until needed at the next peak period.","developer":"New England Power Co.","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":228,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/228/Bear-Swamp.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/228/thumb\_Bear-Swamp.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/228/partner\_Bear-Swamp.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.687055,"longitude":-72.961693,"master\_project\_id":null,"name":"Bear Swamp Hydroelectric Power Station","om\_contractor":"Bear Swamp Power Co. LLC","organization":null,"owner\_1":"Brookfield Power, Inc.","owner\_2":"Emera, Inc.","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":50.0,"ownership\_percentage\_2":50.0,"performance":"Average Generation: 450 GWh/year, Ramp 0% to 100% in 3 minutes, Pump to Generation Ratio: 1.38x","primary\_reference":"http://www.berkshireeagle.com/local/ci\_27767841/bear-swamp-hydroelectric-generation-project-up-license-renewal","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Ramping ","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":600000,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-14T22:28:03Z","updated\_at\_by\_admin":"2016-06-14T22:28:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"National Grid","utility\_type":"Investor Owned","vendor\_company":"Hitachi","zip":""}},{"project":{"announcement\_on":"2022-09-01","approval\_status":2,"city":"Jenkinsville","commissioning\_on":"2022-12-01","companion":"","construction\_on":"2022-05-01","contact\_city":"Cayce","contact\_country":"United States","contact\_email":"jlandreth@scana.com","contact\_info\_visible":false,"contact\_name":"James Landreth, VP Fossil and Hydro Operations at South Carolina Electric & Gas Company","contact\_phone":"803-217-7224","contact\_state":"South Carolina","contact\_street\_address":"220 Operation Way, MC A221","contact\_zip":"29033","contractor\_1":"Gibbs & Hill (Engineer)","contractor\_2":"Daniel Construction (Contractor)","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-23T16:59:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Fairfield Pumped Storage Facility utilizes four earthen dams and four penstocks that lead from the intake structure on the Monticello Reservoir to the powerhouse. \r\n\r\nThe pumped storage facility is primarily used for peaking, reserve generation, and off-peak power usage. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":230,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/230/FairfieldPumpedStorage.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/230/thumb\_FairfieldPumpedStorage.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/230/partner\_FairfieldPumpedStorage.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.2993741,"longitude":-81.3069315,"master\_project\_id":null,"name":"Fairfield Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"South Carolina Electric and Gas Co.","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Hydraulic capacity 50,400 CFS generating & 41,800 CFS pumping (8 units)","primary\_reference":"http://parrfairfieldrelicense.com/documents/quarterlypublicmeeting/Projectpresentation1-13.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":511200,"size\_kwh":6.96666666666667,"size\_kwh\_hours":6,"size\_kwh\_minutes":58.0,"state":"South Carolina","status":"Operational","street\_address":"Bradham Boulevard off Hwy 215","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-14T22:36:27Z","updated\_at\_by\_admin":"2016-06-14T22:36:27Z","updated\_by":null,"updated\_by\_email":null,"utility":"South Carolina Electric & Gas Company","utility\_type":"Investor Owned","vendor\_company":"","zip":"29065"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Blairstown","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"harkerw@firstenergycorp.com","contact\_info\_visible":false,"contact\_name":"William Harker, Director Consolidated Hydro & CT Plants at FirstEnergy","contact\_phone":"330-384-5522","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":15000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-23T17:25:53Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Yards Creek Pumped Storage Facility is located in Blairstown Township, New Jersey. Water is conveyed between the plant & the Upper Reservoir via an 18’ diameter 1,800’ long exposed steel pipe\r\nAt full station load, approx.\u000B4 million gpm of water\u000B is released (9000 cfs).\r\n\r\nThe storage facility provides energy regulation and spinning reserve during on-peak hours, and it provides an energy sink off-peak (11P.M. -7 A.M.) to allow fossil and nuclear plants to remain more fully loaded.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":231,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/231/Yards.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/231/thumb\_Yards.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/231/partner\_Yards.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":41.00095,"longitude":-75.031705,"master\_project\_id":null,"name":"Yards Creek Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"PSEG Fossil","owner\_2":"FirstEnergy Corp.","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":50.0,"ownership\_percentage\_2":50.0,"performance":"Performance metrics not available.","primary\_reference":"http://www.pseg.com/family/power/fossil/stations/yardscreek.jsp","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":400000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"New Jersey","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-14T22:39:57Z","updated\_at\_by\_admin":"2016-06-14T22:39:57Z","updated\_by":null,"updated\_by\_email":null,"utility":"Public Service Electric and Gas Company (PSE&G)","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Mead Township","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"sarora@lspower.com ","contact\_info\_visible":false,"contact\_name":"Sandeep Arora","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":61000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-23T17:45:07Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Seneca Pumped Storage Generating Station is a hydroelectric power plant using pumped storage of water to generate electric power. It is located near Warren, Pennsylvania in Warren County. Seneca Station is colocated with the Kinzua Dam, near Warren, Pennsylvania. The dam was built by the United States Army Corps of Engineers to regulate the Allegheny River as part of a larger flood control project, and, as a secondary role, to generate hydroelectric power. It created the Allegheny Reservoir, a lake that stretches 25 miles (40 km) upriver.\r\n\r\nThe power plant, rated at 435 MW, was built by the Pennsylvania Electric Company and Cleveland Electric Illuminating Company. It began commercial operation in 1970. Through business mergers and acquisitions, the plant is now owned by FirstEnergy, an operator of several base load (nuclear and coal-fired) power plants. Pumped storage plants function similarly to a storage battery; they absorb excess power generated by such plants in off-peak hours, such as nighttime, using it to pump water into a reservoir. Later, when demand exceeds the base load, the flow of water from the reservoir generates additional electrical power to meet peak load demands.","developer":"Pennsylvania Electric Company and Cleveland Electric Illuminating Company","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":232,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/232/220px-USACE\_Kinzua\_Dam\_downriver.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/232/thumb\_220px-USACE\_Kinzua\_Dam\_downriver.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/232/partner\_220px-USACE\_Kinzua\_Dam\_downriver.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":41.831299,"longitude":-79.010186,"master\_project\_id":null,"name":"Seneca Pumped Storage Generating Station","om\_contractor":"","organization":null,"owner\_1":"LS Power Group","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Mean Annual Gross Energy Generation (2004-2009): 691,816 MWh; Mean Annual Net Energy Generation (2004-2009): -243,372 MWh","primary\_reference":"http://www.lspower.com/News/newsarticle07232015.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":440000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Pennsylvania","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-14T22:57:02Z","updated\_at\_by\_admin":"2016-06-14T22:57:02Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Lesterville","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"mbirk@ameren.com","contact\_info\_visible":false,"contact\_name":"Mark Birk, AmerenUE VP, Power Operations","contact\_phone":"(314) 621-3222","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-23T18:01:32Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Taum Sauk pumped storage plant is located in the St. Francois mountain region of the Missouri Ozarks approximately 90 miles (140 km) south of St. Louis near Lesterville, Missouri in Reynolds County. The pumped-storage hydroelectric plant, operated by the AmerenUE electric company, was designed to help meet peak power demands during the day. Electrical generators are turned by water flowing from a reservoir on top of Proffit Mountain into a lower reservoir on the East Fork of the Black River. The generators and turbines at river level are reversible, and at night the excess electricity available on the power grid is used to pump water back to the mountaintop.\r\n\r\nThe Taum Sauk plant is notable in that it is a pure pump-back operation – there is no natural primary flow available for generation, unlike most other pumped storage sites. It was among the largest such projects when it was built. Construction of the Taum Sauk plant began in 1960 and operation began in 1963. The two original reversible pump-turbine units were each capable of generating 175 megawatts of power. They were upgraded in 1999 to units capable of 225 megawatts each.\r\n\r\nThe plant was out of operation after the upper reservoir suffered a catastrophic failure on December 14, 2005, until the rebuilt and recertified structure started producing power again on April 21, 2010. The new upper reservoir dam, rebuilt from the ground up, is the largest roller-compacted concrete dam in North America. The plant was named an IEEE Milestone in 2005.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":233,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/233/220px-Taum\_Sauk\_power\_plant.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/233/thumb\_220px-Taum\_Sauk\_power\_plant.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/233/partner\_220px-Taum\_Sauk\_power\_plant.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"MISO","latitude":37.4537502,"longitude":-90.8435728,"master\_project\_id":null,"name":"Taum Sauk Hydroelectric Power Station","om\_contractor":"","organization":null,"owner\_1":"Ameren Missouri","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://web.mst.edu/~rogersda/dams/taum-sauk/watkins-taum-sauk-gsa\_branson-compressed.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":440000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Missouri","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-14T23:28:08Z","updated\_at\_by\_admin":"2016-06-14T23:28:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"Ameren","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Richard B. Russell Lake","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"CESAS-CCO@usace.army.mil","contact\_info\_visible":false,"contact\_name":"Savannah District Corporate Communications Office","contact\_phone":"912-652-5279","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":137900000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-23T20:44:08Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Richard B. Russell Dam enables a unique capability within the Savannah River Basin as a provider of “pumpback” hydropower. Pumpback turbines are reversible, so they allow the system to re-use water stored in the reservoir system multiple times. This capability is especially helpful during hot, dry summers when the facility can provide more peak-demand electricity with the same amount of water again and again.\r\n\r\nThe pumpback units are typically operated seven days a week but only during the night. By pumping back at night-time, the system maximizes the benefit to taxpayers because night-time electricity costs about a third less than day-time electricity (due to decreased power demand).\r\n\r\nStarting about one hour after sunset, the designated generators are switched into pumpback mode. Once they reverse direction, these units pull water from below the Russell Dam (in the upper portion of Thurmond Lake) and pump it back upstream into Russell Lake. Then, the next day during peak power demands, electricity is generated by releasing that water back down into Thurmond Lake.","developer":"US Army Corps. of Engineers","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":234,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/234/220px-USACE\_Richard\_B\_Russell\_Dam\_and\_Lake.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/234/thumb\_220px-USACE\_Richard\_B\_Russell\_Dam\_and\_Lake.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/234/partner\_220px-USACE\_Richard\_B\_Russell\_Dam\_and\_Lake.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.025195,"longitude":-82.59467,"master\_project\_id":null,"name":"Richard B. Russell Pumped Storage","om\_contractor":"Southeastern Power Administration","organization":null,"owner\_1":"US Army Corps. of Engineers","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://balancingthebasin.armylive.dodlive.mil/2013/02/27/pumpback-2/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":600000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Georgia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-14T23:37:35Z","updated\_at\_by\_admin":"2016-06-14T23:37:35Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Georgetown","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"frank.novachek@xcelenergy.com","contact\_info\_visible":false,"contact\_name":"Frank Novachek","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-23T21:07:28Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Cabin Creek is located high in the Rocky Mountains of Colorado at 10,018 feet above sea level. It is a pumped storage plant with a lower and upper reservoir. During periods of peak electricity demand on Xcel Energy’s Colorado system, electricity is generated by releasing water from the upper reservoir through a tunnel, which turns the turbine generators. The water is then stored in the lower reservoir. In the early hours of the morning when electricity use by the company’s customers is low, water is pumped back to the upper reservoir.\r\n\r\nAs a hydroelectric station, Cabin Creek produces no air, water or land emissions. As we bring additional wind power onto our Colorado system, Cabin Creek can help us better utilize this resource. The pumping of water from the lower reservoir to the upper reservoir can be timed during the evening or early morning when wind generators are producing more power.\r\n\r\nThe Georgetown plant is also open to the public as the Georgetown Energy Museum, where one can see a working power plant. The museum has many intriguing artifacts and pieces from the electrical industry. The museum also offers tours of the plant.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":235,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/235/CabinCreek.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/235/thumb\_CabinCreek.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/235/partner\_CabinCreek.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.7060984,"longitude":-105.6975041,"master\_project\_id":null,"name":"Cabin Creek Generating Station","om\_contractor":"","organization":null,"owner\_1":"Xcel Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Energy: 1317.61 MWh","primary\_reference":"https://www.colorado.gov/pacific/sites/default/files/13WaterResources1010Cabin%20Creek.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":324000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Colorado","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-14T23:58:13Z","updated\_at\_by\_admin":"2016-06-14T23:58:13Z","updated\_by":null,"updated\_by\_email":null,"utility":"Xcel Energy","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Salina","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"cbarney@grda.com","contact\_info\_visible":false,"contact\_name":"Charles Barney","contact\_phone":"918-256-5545","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-23T21:33:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Salina Pumped Storage Project is a 260-megawatt (MW) pumped-storage power station near Salina, Oklahoma. It is owned and operated by the Grand River Dam Authority (GRDA). Its construction was in response to growing power demands and a lack of dam sites on the Grand River. The first phase was completed in 1968 and the second in 1971. The upper reservoir for the power station is Lake W. R. Holway which was built on Saline Creek and the lower reservoir is Lake Hudson on the Grand River. During periods of lower power demand, water is pumped from Lake Hudson to Lake Holway and released back down through the pump-generators during periods of high energy demand.\r\n\r\nThe project was constructed in two stages:\r\n\r\nStage 1 consisted of building an earth and rock filled dam in Chimney Rock Hollow 185 feet (56 m) high, creating Chimney Rock Reservoir. A canal 1,850 feet (560 m) long led from the dam to a forebay structure that had openings for steel penstocks,each 14 feet (4.3 m) in diameter. Three penstocks led from the forebay to a powerhouse that housed three 64,000 horsepower pump-generators, with a total rated capacity of 130 megawatts. This stage was completed in 1968.\r\n\r\nStage 2 comprised building three more penstocks, extending the powerhouse and adding three more pump-generators, all identical to those installed in Stage 1. This doubled the facility's capacity to 260 mw. It was completed in 1971.\r\n\r\nThe SPSP is controlled remotely from the GRDA Energy Control Center at the Robert S. Kerr Dam, which created Lake Hudson.","developer":"Grand River Dam Authority (GRDA)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":236,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/236/SPSPaerial-300x207.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/236/thumb\_SPSPaerial-300x207.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/236/partner\_SPSPaerial-300x207.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"SPP","latitude":36.26566,"longitude":-95.10456,"master\_project\_id":null,"name":"Salina Pumped Storage Project","om\_contractor":"","organization":null,"owner\_1":"Grand River Dam Authority (GRDA)","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.grda.com/electric/facilities/salina-pumped-storage-project/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":260000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Oklahoma","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-15T00:00:10Z","updated\_at\_by\_admin":"2016-06-15T00:00:10Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Chatsworth","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jason.c.johnston@usace.army.mil","contact\_info\_visible":false,"contact\_name":"Jason Johnston","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-23T21:49:09Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Carters Dam is an earthen embankment dam located south of Chatsworth in Murray County and west of Ellijay in the U.S. state of Georgia. The dam is 445 ft (136 m) tall and is situated 26.8 miles (43.1 km) above the mouth of the Coosawattee River. The drainage area is 376 square miles (974 km²).\r\n\r\nBelow the dam is a 1,000 acres (400 ha) retention and re-regulation lake. The hydroelectric plant is of the pumped storage type. That is, during off-peak hours the water from the retention lake is pumped back up into the lake for use in generating power during the next time of peak demand. The dam's power station contains 2 X 125 MW Francis turbines and 2 X 125 MW Francis pump turbines for used in pumped-storage. Voltage: 13,800 V, Power Factor: .95","developer":"US Army Corps. of Engineers","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":237,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/237/220px-USACE\_Carters\_Dam\_powerhouse.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/237/thumb\_220px-USACE\_Carters\_Dam\_powerhouse.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/237/partner\_220px-USACE\_Carters\_Dam\_powerhouse.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.7659145,"longitude":-84.7699385,"master\_project\_id":null,"name":"Carters Dam Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"US Army Corps. of Engineers","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"http://water.sam.usace.army.mil/cart-pert.htm","primary\_reference":"http://www.hydroworld.com/articles/2015/05/alstom-wins-contract-for-carter-pumped-storage-stator-replacements.html/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":250000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Georgia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-15T19:19:07Z","updated\_at\_by\_admin":"2016-06-15T19:19:07Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Smith Mountain Lake","commissioning\_on":"2022-03-07","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"lejackson@aep.com","contact\_info\_visible":false,"contact\_name":"Larry Jackson, External Affairs","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-23T22:12:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Smith Mountain Dam houses five hydroelectric generators with a combined installed capacity of 560 MW. Smith Mountain Lake Dam utilizes pumped-storage hydroelectricity by which water that is released downstream can be pumped back into Smith Mountain Lake for re-use. The Leesville Dam regulates the Smith Mountain Lake's outflows and stores water to be pumped back into the Smith Mountain Lake for this purpose. Hydro-electricity is usually produced during high-demand times (day) and pumped back into the lake during low demand times (night). The Leesville Dam also produces hydro-electricity as well.\r\n\r\nIn December, 2009, The U.S. Federal Energy Regulatory Commission granted Appalachian Power a new license to operate the hydro-electricity plant. The new 30-year license replaces the original 50-year license and also addresses recreational and environmental management.","developer":"Appalachian Power","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":238,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/238/SmithMtn\_HomeBanner.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/238/thumb\_SmithMtn\_HomeBanner.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/238/partner\_SmithMtn\_HomeBanner.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":37.0497134,"longitude":-79.6393985,"master\_project\_id":null,"name":"Smith Mountain Pumped Storage Project","om\_contractor":"","organization":null,"owner\_1":"Appalachian Power (a division of AEP)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://smith-mountain-lake.com/#howitworks","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":560000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Virginia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-15T20:24:05Z","updated\_at\_by\_admin":"2016-06-15T20:24:05Z","updated\_by":null,"updated\_by\_email":null,"utility":"Appalachian Power","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Milledgeville","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"cblack@southernco.com; kjenkins@southernco.com; DRJohnso@southernco.com; BDECHOLS@southernco.com","contact\_info\_visible":false,"contact\_name":"Clifton Black; Kip Jenkins; Randy Johnson; Ben Echols","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-25T18:04:35Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In 1979 Lake Oconee was created with the completion of Wallace Dam, which is a pumped-storage reservoir for Lake Sinclair. The water is pumped from Lake Sinclair into Lake Oconee. It is then released through Wallace Dam back into Lake Sinclair - thus generating electricity. The net effect of the power generation process is an approximate 2-foot (0.61 m) drop or rise in Lake Sinclair's water level. \r\n\r\nWallace Dam is actually both a pumped storage hydro facility and a conventional hydroelectric generating plant. It has six units (four of which are reversible) for a total nameplate generation capacity of 321 MW [3]. The pumped storage portion of the plant (the Wallace Dam Pumped Hydro Project) has an installed capacity of roughly 210 MW. 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When both units are operating at capacity, as much as 5,400,000 US gallons of water pass through the turbines each minute. A regulation dam, located 9.5 miles (15.3 km) downstream from the main dam, creates a storage pool that can be used for pumped-storage hydroelectricity. When demand for electricity is low, power from other sources can be used to pump water back from the tailwater to the lake. This water can then be re-cycled through the turbines when energy is in high demand.","developer":"St. Louis District Corps. of Engineers","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":241,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/241/240px-USACE\_Mark\_Twain\_Lake\_and\_Dam.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/241/thumb\_240px-USACE\_Mark\_Twain\_Lake\_and\_Dam.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/241/partner\_240px-USACE\_Mark\_Twain\_Lake\_and\_Dam.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"MISO","latitude":39.524633,"longitude":-91.643845,"master\_project\_id":null,"name":"Clarence Cannon Dam Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"US Army Corps. of Engineers","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://en.wikipedia.org/wiki/Mark\_Twain\_Lake","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":58000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Missouri","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-15T20:51:38Z","updated\_at\_by\_admin":"2016-06-15T20:51:38Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Tonto National Forest","commissioning\_on":"2022-08-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ddubray@usbr.gov","contact\_info\_visible":false,"contact\_name":"Dan DuBray","contact\_phone":"202-513-0574","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Bechtel Corporation","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-25T20:21:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Mormon Flat Dam is named after nearby Mormon Flat, a place where pioneers from Utah stopped to camp en route to the Valley. The dam, built between 1923-25, is 224 feet high and 380 feet long.\r\nTwo hydroelectric generating units are at the dam; one is a conventional unit rated at 10,000 kW; the other is a pumped storage unit built in 1971 and rated at 50,000 kW. The pumped storage unit permits recycling of water for hydroelectric production and keeps lake levels relatively constant.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":242,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/242/mormon-flat08.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/242/thumb\_mormon-flat08.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/242/partner\_mormon-flat08.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":33.465908,"longitude":-112.031859,"master\_project\_id":null,"name":"Mormon Flat Pumped Hydro Storage","om\_contractor":"","organization":null,"owner\_1":"Bureau of Reclamation","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.srpnet.com/water/dams/mormon.aspx","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":50000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Arizona","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:03:07Z","updated\_at\_by\_admin":"2013-05-03T15:42:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"Salt River Project","utility\_type":"Public Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Maricopa County","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"ddubray@usbr.gov","contact\_info\_visible":false,"contact\_name":"Dan DuBray","contact\_phone":"202-513-0574","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":625000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-25T20:45:49Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Construction of New Waddell Dam began in 1985, and continued through 1994. New Waddell Dam's primary purpose is to store Colorado River water for CAP use. The dam also stores Agua Fria River runoff and provides flood protection by controlling river flows. The dam is located one-half mile downstream of historic Waddell Dam, which was built by the Maricopa Water District (MWD). The dam's reservoir, Lake Pleasant, also stores water for MWD irrigation.\r\n\r\nIn the winter, Colorado River water is pumped uphill from the CAP aqueduct into Lake Pleasant when power rates are low. In the summer, when demand for water and electricity increases, water is released through the Pump-Generating plant, producing hydroelectric power that is sold to help repay the CAP's construction costs. In addition, New Waddell Dam adds 7,000 surface acres to the lake, greatly increasing the recreational value of Lake Pleasant Regional Park.\r\n\r\nHandicapped-accessible recreational facilities include 3 multiple-lane boat ramps, 450 picnic sites, 225 campsites, 14 group use areas, 4 overlooks, a full-service marina equipped to handle 1000 boats, and 7 miles of trail. Because the reservoir water level may fluctuate up to 125 feet during a typical year's operation, the facilities will be located to be accessible during both high and low water periods.\r\n\r\nIf necessary, floodwaters can be released from the dam through the river outlet works tunnel into the Agua Fria River immediately below the dam. If the reservoir's flood storage capacity is ever exceeded, water can also be released over spillways located west of the dam. This water would flow down Morgan City Wash and back to the Agua Fria River about one mile below the dam.\r\n\r\nThe cost of constructing New Waddell Dam was more than $625 million. The Central Arizona Water Conservation District, which operates and maintains the CAP, is repaying $175 million of this cost.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":243,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/243/nwaddell.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/243/thumb\_nwaddell.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/243/partner\_nwaddell.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.2917968,"longitude":-112.4291464,"master\_project\_id":null,"name":"New Waddell Dam Pumped Hydro Storage","om\_contractor":"","organization":null,"owner\_1":"Bureau of Reclamation","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Pumping Capacity: 3,000 cfs","primary\_reference":"http://www.usbr.gov/lc/phoenix/projects/waddelldamproj.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":45000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Arizona","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-15T21:18:28Z","updated\_at\_by\_admin":"2016-06-15T21:18:28Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"DeGray Lake","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ceswl-pa@usace.army.mil","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-25T21:05:31Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The dam at DeGray Lake houses a 28 MW pump-turbine and is owned by the US Army Corps. of Engineers. Electrical power from this facility is sold to Southwest Power Administration of the U.S. Department of Energy.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":244,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/244/240px-USACE\_DeGray\_Dam\_and\_Lake.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/244/thumb\_240px-USACE\_DeGray\_Dam\_and\_Lake.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/244/partner\_240px-USACE\_DeGray\_Dam\_and\_Lake.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.213624,"longitude":-93.110407,"master\_project\_id":null,"name":"DeGray Lake Pumped Hydro Storage","om\_contractor":"","organization":null,"owner\_1":"US Army Corps. of Engineers","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.encyclopediaofarkansas.net/encyclopedia/entry-detail.aspx?entryid=5527","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":28000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Arkansas","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-15T21:21:46Z","updated\_at\_by\_admin":"2016-06-15T21:21:46Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"North Blenheim","commissioning\_on":"2022-07-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"mitchell.m@nypa.gov","contact\_info\_visible":false,"contact\_name":"Michael Mitchell","contact\_phone":"914-681-6428","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":142000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-26T16:59:16Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Catskill Mountains are home to a special type of hydroelectric facility that serves as a giant energy-storage device—the Blenheim-Gilboa Pumped Storage Power Project. Nestled beneath 2,000-foot-tall Brown Mountain, this project generates more than one million kilowatts of electricity in peak demand periods by drawing water from Schoharie Creek and recycling it between two huge reservoirs.\r\n\r\nBlenheim-Gilboa serves two vital functions. It saves money for New York consumers by providing low-cost electricity when they need it most. And it stores water for emergency power production. If necessary, this project can be up and running within two minutes. It can \"pinch hit\" if another plant or line suddenly goes out of service.\r\n\r\nA $135-million four-year program to modernize and extend the life of the Blenheim-Gilboa project was completed in May 2010. As part of the four-year program, known as LEM (Life Extension and Modernization), one of project’s four turbine-generator units was taken out of service each fall for approximately eight months. Most of the unit’s mechanical and electrical components were replaced, with repairs made to virtually all other parts. With completion of the project, the four units have a generating capacity of 290 megawatts each, providing an overall project generating capacity of 1,160 megawatts.","developer":"New York Power Authority (NYPA)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":245,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/245/Untitled.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/245/thumb\_Untitled.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/245/partner\_Untitled.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":42.442978,"longitude":-74.448187,"master\_project\_id":null,"name":"Blenheim-Gilboa Pumped Storage Power Project","om\_contractor":"","organization":null,"owner\_1":"New York Power Authority (NYPA)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"http://tinyurl.com/qb8fego","primary\_reference":"http://www.nypa.gov/facilities/blengil.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1160000,"size\_kwh":15.0,"size\_kwh\_hours":15,"size\_kwh\_minutes":0.0,"state":"New York","status":"Operational","street\_address":"Blenheim-Gilboa Visitors Center/Lansing Manor 1378 State Route 30 P.O. Box 898 ","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-16T00:25:28Z","updated\_at\_by\_admin":"2016-06-16T00:25:28Z","updated\_by":null,"updated\_by\_email":null,"utility":"New York Power Authority (NYPA)","utility\_type":"Public Owned","vendor\_company":"Hitachi","zip":"12131"}},{"project":{"announcement\_on":"2022-02-19","approval\_status":1,"city":"Lubbock","commissioning\_on":"2022-10-21","companion":"","construction\_on":null,"contact\_city":"Austin","contact\_country":"United States","contact\_email":"mholloway@electrictechnologycenter.com","contact\_info\_visible":true,"contact\_name":"Milton Holloway","contact\_phone":"5127515626","contact\_state":"Texas","contact\_street\_address":"114 West 7th Street, Suite 1210","contact\_zip":"78701","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":2000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-26T18:59:22Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Samsung SDI, an affiliate of Samsung Group, and Younicos (formerly Xtreme Power) were selected by the Center for the Commercialization of Electric Technologies (CCET) to install a 1MW/1MWh Lithium Ion based Battery Energy Storage System (BESS) system at the Reese Technology Center in Lubbock, Texas as part of a Smart Grid Demonstration Project (SGDP). The $27 million demonstration project jointly funded by CCET partners and the US Department of Energy as part of the American Recovery and Reinvestment Act (ARRA) of 2009 is managed by CCET. $2 million of this went towards the BESS. The SGDP is known as Discovery Across Texas, Technology Solutions for Wind Integration in ERCOT. BESS will be owned and operated by South Plains Electric Cooperative (SPEC) as one of several project technologies to serve the SGDP objectives of wind integration.\r\n\r\nThe Samsung SDI and Younicos BESS will be connected to SPEC's distribution grid at the Reese Technology Center as part of an ongoing wind technology program managed by GroupNIRE and Texas Tech University. The BESS will focus on combining utility scale energy storage with wind generation. Potential uses for the BESS include mitigating intermittent fluctuations of a number of nearby wind turbines, regulating the distribution bus voltage, serving as spinning reserve, and providing frequency support during the loss of generation.\r\n","developer":"Center For Commercialization of Electric Technology (CCET)","electronics\_provider":"Younicos Inc.","energy\_management\_software\_provider":"","funding\_amount\_1":13500000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":248,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/248/tx.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/248/thumb\_tx.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/248/partner\_tx.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":33.5934104,"longitude":-102.0291177,"master\_project\_id":null,"name":"Technology Solutions for Wind Integration - Center For Commercialization of Electric Technology (CCET)","om\_contractor":"South Plains Electric Cooperative (SPEC)","organization":"Center For Commercialization of Electric Technology (CCET)","owner\_1":"South Plains Electric Cooperative","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"https://www.smartgrid.gov/files/CCET-SGDP-FTR\_Feb\_2015.pdf","primary\_reference":"https://www.smartgrid.gov/project/ccet\_technology\_solutions\_wind\_integration.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"The project is included in a U.S. Department of Energy smart grid demonstration analyzing the benefits of using energy storage for wind energy integration.","research\_institution":"Texas Tech University","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Ramping ","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"Reese Technology Center, 9801 S Reese Blvd #200","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Manganese Oxide Battery","technology\_type\_l1":"Lithium Manganese Oxide Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-17T01:11:59Z","updated\_at\_by\_admin":"2016-06-16T00:31:23Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"South Plains Electric Cooperative","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":"2022-06-07","approval\_status":1,"city":"Fort Collins","commissioning\_on":"2022-09-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3232","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-26T19:41:22Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This project as part of Fort Collins Utilities Four Cities Smart Grid Development Project will address the research, development, and demonstration of a coordinated and integrated system of 3.5 MW of mixed distributed resources in Fort Collins, Colorado to achieve a 20-30 percent peak load reduction on two distribution feeders. These two feeders serve the planned FortZED Jump Start Zone (Ft. Collins Zero Energy District, in which the district creates as much thermal and electrical energy locally as it uses). This project will modernize and transform the electrical distribution system of the City of Fort Collins by reducing distribution feeder peak loads, increasing the penetration of renewables, and delivering improved efficiency and reliability to the grid and resource asset owners. \r\n\r\nFort Collins is well positioned to successfully complete this project due to 1) the unique combination of world-class research facilities at Colorado State University, 2) participation of global industry leaders and local entrepreneurs able to commercialize the technology, 3) the City of Fort Collins’ focus on and investments in clean energy as a key pillar of future growth, and 4) the presence of a city-owned utility and extensive community support.\r\n\r\nAs a small portion of this project, thermal storage will be installed at the following sites:\r\n\r\nSite 1: New Belgium Brewing -- deploys new 200-kW PV arrays with AE inverters; a 292-kW methane-based Gauscor CHP; a 650-kW CAT 3508C methane-based CHP; a 135-kW new thermal storage; and a 160-kW load shedding potentials.\r\n\r\nSite 2: City of Fort Collins Facilities -- deploys a 500-kW conventional generator with Woodward controls and Eaton switchgear; a 92-kW thermal storage; a 5-kW PV array; a 62-kW HVAC and DSM; and 2x10kW Ford Escapes (PHEVs).\r\n\r\nSite 3: Colorado State University - deploys an 80-kW thermal storage; an 80-kW fan variable speed drives; a 21.6-kW water fountain pumps; a 3.6-kW hot water heater controls; a 6-kW daylight control, and a 950-kW conventional gensets with Woodward controls and Eaton switchgear.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":18101263.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":249,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/249/NewBelgium.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/249/thumb\_NewBelgium.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/249/partner\_NewBelgium.jpg"}},"integrator\_company":"Spirae","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":40.593415,"longitude":-105.066874,"master\_project\_id":null,"name":"City of Fort Collins Utilities New Belgium Brewery ","om\_contractor":"","organization":"Ice Energy","owner\_1":"City of Fort Collins","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"https://www.smartgrid.gov/files/09-0007-fort-collins-project-description-08-12-11.pdf","primary\_reference":"http://www.newbelgium.com/Sustainability/Environmental-Metrics/Energy","primary\_reference1":"https://building-microgrid.lbl.gov/fort-collins","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"The project will address the research, development, and demonstration of a coordinated and integrated system of 3.5 MW of mixed distributed resources in Fort Collins, Colorado to achieve a 20-30 percent peak load reduction on two distribution feeders.","research\_institution":"Colorado State University","research\_institution\_link":"http://vpr.colostate.edu/pages/mainpage.htm","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":135,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Colorado","status":"Operational","street\_address":"500 Linden St","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-11T00:36:07Z","updated\_at\_by\_admin":"2016-06-17T23:16:25Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Fort Collins Utilities Light & Power","utility\_type":"Public Owned","vendor\_company":"Ice Energy","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Borrego Springs","commissioning\_on":"2022-06-30","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"tbialek@semprautilities.com","contact\_info\_visible":false,"contact\_name":"Thomas Bialek Chief Engineer, Smart Grid","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-26T21:11:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The San Diego Gas and Electric (SDG&E) microgrid project integrates a U.S. Department of Energy (DOE) component - focused on utility-side applications, and a California Energy Commission (CEC) portion , which focuses on customer-side applications. Goals of the DOE portion include achieving a greater than 15 percent reduction in feeder peak load, exploring microgrid islanding, and improving system reliability. \r\n\r\nBorrego Substation, with a peak load of over 10 MW, was selected as the demonstration site since it provides a unique opportunity to explore microgrid islanding of an entire distribution feeder. The overall project involves integration of five technologies, including distributed energy resources (DER) and VAR management, feeder automation system technologies (FAST), advanced energy storage, an outage/distribution management system, and price-driven load management. The project team will also perform a cost/benefit analysis for full-scale deployment.\r\n\r\nAs a part of this project, SDG&E installed a 1.5 MWh Li-ion battery energy storage system at the Borrego Springs Substation in June of 2012.\r\n\r\nSince commissioning the system has successfully operated independent of the grid during storm outages. \r\n","developer":"San Diego Gas and Electric","electronics\_provider":"Parker Hannifin","energy\_management\_software\_provider":null,"funding\_amount\_1":7477000.0,"funding\_amount\_2":2500000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"State/Provincial/Regional RD&D","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"California Energy Commission (CEC) - Public Interest Energy Research (PIER)","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":251,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/251/borregosaft.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/251/thumb\_borregosaft.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/251/partner\_borregosaft.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":33.2558717,"longitude":-116.375012,"master\_project\_id":"252:253","name":"Borrego Springs Microgrid - SDG&E ","om\_contractor":"","organization":null,"owner\_1":"San Diego Gas and Electric","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"http://theenergycollective.com/christine-hertzog/401401/four-important-lessons-borrego-springs-microgrid-pilot","primary\_reference":"http://energy.gov/sites/prod/files/30\_SDGE\_Borrego\_Springs\_Microgrid.pdf","primary\_reference1":null,"projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Load Following (Tertiary Balancing)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"Transmission Congestion Relief","service\_use\_case\_6":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":500,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"Borrego Valley Substation","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Nickel Cobalt Aluminum Battery","technology\_type\_l1":"Lithium Nickel Cobalt Aluminum Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-17T23:34:18Z","updated\_at\_by\_admin":"2016-06-17T23:34:18Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Saft","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Borrego Springs","commissioning\_on":"2022-09-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"tbialek@semprautilities.com","contact\_info\_visible":false,"contact\_name":"Thomas Bialek Chief Engineer, Smart Grid","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-26T21:37:26Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The San Diego Gas and Electric (SDG&E) microgrid project integrates a U.S. Department of Energy (DOE) component - focused on utility-side applications, and a California Energy Commission (CEC) portion , which focuses on customer-side applications. Goals of the DOE portion include achieving a greater than 15 percent reduction in feeder peak load, exploring microgrid islanding, and improving system reliability. \r\n\r\nBorrego Substation, with a peak load of over 10 MW, was selected as the demonstration site since it provides a unique opportunity to explore microgrid islanding of an entire distribution feeder. The project involves integration of five technologies, including distributed energy resources (DER) and VAR management, feeder automation system technologies (FAST), advanced energy storage, an outage/distribution management system, and price-driven load management. The project team will also perform a cost/benefit analysis for full-scale deployment.\r\n\r\nSDG&E has installed two 25 kW/50 kWh Li-ion batteries and one 25 kW/25 kWh Li-ion battery on Circuit 170 at 12 kV. These units are operated independently and as a fleet.","developer":"San Diego Gas and Electric","electronics\_provider":"S&C Electric ","energy\_management\_software\_provider":null,"funding\_amount\_1":7477000.0,"funding\_amount\_2":2500000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"State/Provincial/Regional RD&D","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"California Energy Commission (CEC) - Public Interest Energy Research (PIER)","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":252,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/252/borregoces.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/252/thumb\_borregoces.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/252/partner\_borregoces.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":33.2558717,"longitude":-116.375012,"master\_project\_id":"251:253","name":"SDG&E Borrego Springs Microgrid Demonstration Project: Community Energy Storage","om\_contractor":"","organization":null,"owner\_1":"San Diego Gas and Electric","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"http://theenergycollective.com/christine-hertzog/401401/four-important-lessons-borrego-springs-microgrid-pilot","primary\_reference":"http://energy.gov/sites/prod/files/30\_SDGE\_Borrego\_Springs\_Microgrid.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":75,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-17T23:31:56Z","updated\_at\_by\_admin":"2016-06-17T23:31:56Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Kokam","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Borrego Springs","commissioning\_on":"2022-09-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"tbialek@semprautilities.com","contact\_info\_visible":false,"contact\_name":"Thomas Bialek Chief Engineer, Smart Grid","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-26T21:51:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The San Diego Gas and Electric (SDG&E) microgrid project integrates a U.S. Department of Energy (DOE) component - focused on utility-side applications, and a California Energy Commission (CEC) portion , which focuses on customer-side applications. Goals of the DOE portion include achieving a greater than 15 percent reduction in feeder peak load, exploring microgrid islanding, and improving system reliability. \r\n\r\nBorrego Substation, with a peak load of over 10 MW, was selected as the demonstration site since it provides a unique opportunity to explore microgrid islanding of an entire distribution feeder. The project involves integration of five technologies, including distributed energy resources (DER) and VAR management, feeder automation system technologies (FAST), advanced energy storage, an outage/distribution management system, and price-driven load management. The project team will also perform a cost/benefit analysis for full-scale deployment.\r\n\r\nAs a part of this project, SDG&E is planning to install up to six 4.5 kW/6.6 kWh Li-ion batteries at multiple residences and/or small commercial with charge/discharge commands sent via cloud based networking.","developer":"San Diego Gas and Electric","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":7500000.0,"funding\_amount\_2":2800000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 - RD&D","funding\_source\_2":"State/Provincial/Regional RD&D","funding\_source\_3":"","funding\_source\_details\_1":"US DOE Smart Grid Program (ARRA)","funding\_source\_details\_2":"California Energy Commission (CEC) - Public Interest Energy Research (PIER)","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":253,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/253/borregohes.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/253/thumb\_borregohes.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/253/partner\_borregohes.jpg"}},"integrator\_company":"Phazer Electric","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":33.2558717,"longitude":-116.375012,"master\_project\_id":"251:252:253","name":"SDG&E Borrego Springs Microgrid Demonstration Project: Home Energy Storage","om\_contractor":"","organization":null,"owner\_1":"San Diego Gas and Electric","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"http://theenergycollective.com/christine-hertzog/401401/four-important-lessons-borrego-springs-microgrid-pilot","primary\_reference":"http://energy.gov/sites/prod/files/30\_SDGE\_Borrego\_Springs\_Microgrid.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Bill Management with Renewables","service\_use\_case\_4":"Electric Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":24,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-17T23:34:58Z","updated\_at\_by\_admin":"2016-06-17T23:34:58Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-20","approval\_status":1,"city":"Wailea","commissioning\_on":"2022-05-17","companion":"69 kV Transmission Substation","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"rochelea@hawaii.edu","contact\_info\_visible":true,"contact\_name":"Richard Rocheleau","contact\_phone":"808-956-8346","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"NEC Energy Solutions, Inc.","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-26T22:39:26Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The overarching project objective is to develop and demonstrate a Distribution Management System (DMS) that aggregates distributed generation (DG), energy storage, and demand response technologies in a distribution system to achieve both distribution and transmission level benefits. Ideally, the application of these technologies would increase system reliability and improve power quality along with reducing costs to both the utility and its customers.\r\n\r\nThe advanced energy storage system is installed at the Maui Electric Company substation in Wailea as part of the Maui Smart Grid Project.\r\n\r\nThe Grid Storage Solution was provided by A123 Systems (NEC Energy Solutions), a developer and manufacturer of advanced lithium ion batteries and systems. It is designed to deliver one megawatt of power for a full hour, reducing the peak energy load on the substation’s transformers.","developer":"Maui Electric Company, NEC Energy Solutions, Inc.","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":254,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/254/Wailea-HI-GBS.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/254/thumb\_Wailea-HI-GBS.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/254/partner\_Wailea-HI-GBS.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":20.683746,"longitude":-156.429947,"master\_project\_id":null,"name":"University of Hawaii Smart Grid Regional and Energy Storage Demonstration Project (Maui Smart Grid) - Maui Electric Company & NEC Energy Solutions, Inc.","om\_contractor":"","organization":"University of Hawaii","owner\_1":"Maui Electric Company (MECO)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"https://www.neces.com/our-experience/project/wailea-maui-hi-2/","primary\_reference1":"","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"The Hawaii Natural Energy Institute is an organized research unit of the School of Ocean and Earth Science and Technology (SOEST) of the University of Hawai‘i at Mānoa (UHM). The Institute performs research, conducts testing and evaluation, and manages public-private partnerships across a broad range of renewable and enabling technologies to reduce the State of Hawai‘i's dependence on fossil fuel.","research\_institution":"Hawai'i Natural Energy Institute (HNEI)","research\_institution\_link":"http://www.hnei.hawaii.edu/","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Transmission Congestion Relief","service\_use\_case\_5":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_6":"Voltage Support","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Hawaii","status":"Operational","street\_address":"Kalai Wae Street","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-16T07:27:57Z","updated\_at\_by\_admin":"2016-06-20T22:48:58Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Maui Electric Company (MECO)","utility\_type":"Investor Owned","vendor\_company":"NEC Energy Solutions, Inc.","zip":"96753"}},{"project":{"announcement\_on":"2021-12-20","approval\_status":2,"city":"Morgantown","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"HMAYFIE@Alleghenypower.com","contact\_info\_visible":false,"contact\_name":"Harley Mayfield","contact\_phone":"304-284-1217","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-26T22:59:21Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"One component of the Super Circuit project is a microgrid: a small generation and distribution grid that can be self-sufficient locally but also operates tied to the utility grid. Microgrids are conceived of as a way of integrating home- or neighborhood-scale generation sources into the larger system and a way of reducing the scope and severity of outages, but they introduce variables that utilities need to understand better. \r\n\r\nThe Super Circuit microgrid installation — a 160-kilowatt natural gas generator, a 40-kilowatt solar array and three lithium-ion batteries that can put out a total of 24 kilowatts of power for two hours, all to be wired into two commercial buildings at Research Ridge technology park in Morgantown — will serve as a laboratory for exploring those variables. \r\n\r\nSource: http://www.statejournal.com/story/20393910/wv-super-circuit-to-demonstrate-smart-grid-in-morgantown","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":255,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/255/WVSuperCircuit.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/255/thumb\_WVSuperCircuit.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/255/partner\_WVSuperCircuit.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.629526,"longitude":-79.9558968,"master\_project\_id":null,"name":"Allegheny Power Demonstration Project (RDSI) - West Virginia Super Circuit","om\_contractor":"","organization":null,"owner\_1":"Monongahela Power","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.sgiclearinghouse.org/?q=node/1570&lb=1","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":24,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"West Virginia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-20T23:35:37Z","updated\_at\_by\_admin":"2016-06-20T23:35:37Z","updated\_by":null,"updated\_by\_email":null,"utility":"Monongahela Power","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Los Banos","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"psoeth@usbr.gov","contact\_info\_visible":false,"contact\_name":"Jacob Oxenrider, San Luis-Delta Mendota Water Authority; Peter Soeth, Public Affairs Specialist","contact\_phone":"209.826.0144","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-27T00:05:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The O`Neill Pump-Generating Plant pumps Central Valley Project water for offstream storage.\r\n\r\nThe O`Neill Pump-Generating Plant consists of an intake channel leading off the Delta-Mendota Canal and six pump-generating units. Normally these units operate as pumps to lift water from 45 to 53 feet into the O`Neill Forebay. Water is occasionally released from the forebay to the Delta-Mendota Canal, and these units then operate as generators. When operating as pumps and motors, each unit can discharge 700 cubic feet per second and has a rating of 6,000 horse-power. When operating as turbines and generators, each unit has a generating capacity of about 4,200 kilowatts.\r\n\r\nO`Neill, which operates primarily as a pumping plant only generates part of the year. The authorizing legislation for O`Neill states that power generated at the facility cannot be used for commercial purposes. Therefore, the generation produced at O`Neill is allocated as project-use power for the Central Valley Project and the cost associated with generation is allocated to the irrigation component of Central Valley Project.\r\n\r\nAvailability Factor: 89.6; Net Generation: 5,404,000 kWh","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":256,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/256/oneil.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/256/thumb\_oneil.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/256/partner\_oneil.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.0582786,"longitude":-120.8499151,"master\_project\_id":null,"name":"O'Neill Pump-Generating Plant","om\_contractor":"","organization":null,"owner\_1":"Bureau of Reclamation","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"http://www.usbr.gov/projects//ImageServer?imgName=Doc\_1240941910659.pdf","primary\_reference":"http://www.usbr.gov/projects/Powerplant.jsp?fac\_Name=O%60Neill+Powerplant+\*","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":25200,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-20T23:45:32Z","updated\_at\_by\_admin":"2016-06-20T23:45:32Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Loveland","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"pseoth@usbr.gov","contact\_info\_visible":false,"contact\_name":"Chuck Pederson; Peter Soeth; Jeff Cross","contact\_phone":"970 962-4400; ; 970 962-4320","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-27T00:20:23Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Flatiron Powerplant discharges into Flatiron Reservoir, which regulates the water for release to the foothills storage and distribution system. The afterbay storage in Flatiron Reservoir and the forebay storage in Pinewood Lake enable Flatiron Powerplant to meet daily power loads. The Flatiron reversible pump (Unit 3) lifts water from Flatiron Reservoir, a maximum of 297 feet, and delivers it through Carter Lake pressure conduit and tunnel to Carter Lake. When the flow is reversed, the unit acts as a turbine-generator and produces electric energy.\r\n\r\nFlatiron units one and two are on AGC and provide VAR support and are occasionally used for spinning reserve.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":257,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/257/flatiron.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/257/thumb\_flatiron.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/257/partner\_flatiron.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":40.364905,"longitude":-105.235797,"master\_project\_id":null,"name":"Flatiron Powerplant","om\_contractor":"","organization":null,"owner\_1":"Bureau of Reclamation","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.usbr.gov/projects/Powerplant.jsp?fac\_Name=Flatiron+Powerplant","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Load Following (Tertiary Balancing)","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":8500,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Colorado","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-20T23:52:28Z","updated\_at\_by\_admin":"2016-06-20T23:52:28Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"80537"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Charlotte","commissioning\_on":"2022-09-15","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Zachary.Kuznar@duke-energy.com","contact\_info\_visible":false,"contact\_name":"Zach Kuznar, Duke Energy","contact\_phone":"(513) 265-2157","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-30T18:06:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Duke Energy's Smart Grid Demonstration activities include work in the Envision Energy pilot in Charlotte, North Carolina. The Envision Energy project consists of two substation scale energy storage installations, a one MW solar installation, two community energy storage locations, communication nodes, distribution devices, metering, home energy management systems, residential PV, intelligent EVSE and plug-in vehicles. The residential systems (PV, PEV, EVSE, CES, HEM, and smart appliances) will be installed at five employee homes.\r\n\r\nThe Purpose of CES Systems is to perform transformer-level peak shaving by integrating with residential level distributed resources and loads. The CES units were reportedly shipped to Duke Energy in July 2011and installed at two utility employee properties in mid-September 2011. The units were previously observed being tested at a Milwaukee plant.\r\n\r\nSystem components include:\r\n-24 kWh, 24 kW Superior Lithium Polymer battery\r\n-System integration module (S&C)\r\n-Interconnection to customer side of distribution transformer.\r\n\r\nSource: \"Energy Storage and Project Demos\" Electric Power Energy Research (EPRI)","developer":"Duke Energy","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":258,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/258/McAlpine\_CES.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/258/thumb\_McAlpine\_CES.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/258/partner\_McAlpine\_CES.JPG"}},"integrator\_company":"S&C Electric","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.2270869,"longitude":-80.8431267,"master\_project\_id":null,"name":"McAlpine Circuit CES System","om\_contractor":"","organization":null,"owner\_1":"Duke Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://origin.library.constantcontact.com/download/get/file/1102926161246-129/Zak+Kuznar.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Residential (Reliability)","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":50,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"North Carolina","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-20T23:57:52Z","updated\_at\_by\_admin":"2016-06-20T23:57:52Z","updated\_by":null,"updated\_by\_email":null,"utility":"Duke Energy","utility\_type":"Investor Owned","vendor\_company":"Kokam","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"New Milford","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"gary.smolen@gdfsuezna.com","contact\_info\_visible":false,"contact\_name":"Gary Smolen","contact\_phone":"860-350-3631","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-04-30T19:39:27Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Connecticut Light & Power Company pioneered the use of pumped storage in the United States at this hydroelectric station. First operated in 1929, the Rocky River Plant had two reversible pumps that somewhat resemble large hydroelectric turbines. This permitted significant improvements in the system efficiency of the company's network of hydroelectric and thermal-electric power generating plants.\r\n\r\nWith Candlewood Lake and the Housatonic River differing in elevation by 200 feet, the Rocky River plant uses a single penstock, 1,000 feet long, to carry water downhill and lift it uphill. The Rocky River plant's pair of 8,100-horsepower pumps together are capable of lifting a million gallons every four minutes. At the time of their installation, they were largest of their kind in the world. \r\n\r\nThe Rocky River plant pumps water when the Housatonic River runs high. When the river runs low, water released from the lake to create electricity also raises the river level, helping generate additional power at two downriver plants. For every kilowatt-hour used to pump water, the three plants together can generate 1.3 kilowatt-hours.","developer":"Connecticut Light & Power Co.","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":261,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/261/rr2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/261/thumb\_rr2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/261/partner\_rr2.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":41.58258,"longitude":-73.433801,"master\_project\_id":null,"name":"Rocky River Pumped Storage Plant","om\_contractor":"","organization":null,"owner\_1":"FirstLight Power Resources","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.asce.org/project/rocky-river-pumped-storage-hydraulic-plant/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":29000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Connecticut","status":"Operational","street\_address":"200 Kent Road","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-21T00:13:32Z","updated\_at\_by\_admin":"2016-06-21T00:13:32Z","updated\_by":null,"updated\_by\_email":null,"utility":"FirstLight Power Resources","utility\_type":"","vendor\_company":"","zip":"06776"}},{"project":{"announcement\_on":"2022-06-06","approval\_status":2,"city":"La Jolla","commissioning\_on":"2022-07-01","companion":"","construction\_on":null,"contact\_city":"San Diego","contact\_country":"United States","contact\_email":"bwashom@ucsd.edu","contact\_info\_visible":false,"contact\_name":"Byron Washom, Director of Strategic Energy Initiatives","contact\_phone":"(858) 869-5805","contact\_state":"CA","contact\_street\_address":"","contact\_zip":"","contractor\_1":"UC San Diego","contractor\_2":"Sanyo Electric Co.","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-02T19:36:58Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-04-14","desc":"Since July 2011, UCSD has served as the site host to a 30 kW / 30 kWh PV integrated storage system from Panasonic/Sanyo. \r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Commercialization Incentive\*","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"California Public Utilities Commission - Self Generation Incentive Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":263,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/263/Picture1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/263/thumb\_Picture1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/263/partner\_Picture1.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.8769207,"longitude":-117.2361478,"master\_project\_id":null,"name":"UC San Diego Panasonic / Sanyo Energy System","om\_contractor":"","organization":"","owner\_1":"UC San Diego","owner\_2":"","owner\_type":"3","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://us.sanyo.com/News/SANYO-and-UCSD-Sign-Multi-Year-Multi-Disciplinary-Research-Agreement-for-Renewable-Energy-to-Pioneer-the-Next-Generation-of-Energy-Management","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"Public University","research\_institution":"UC San Diego","research\_institution\_link":"","service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":30,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"De-Commissioned","street\_address":"9500 Gilman Dr","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-09T23:01:59Z","updated\_at\_by\_admin":"2016-08-09T23:01:59Z","updated\_by":null,"updated\_by\_email":null,"utility":"UC San Diego Microgrid","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Sanyo Electric Co.","zip":"92093"}},{"project":{"announcement\_on":"2022-05-04","approval\_status":0,"city":"Canton","commissioning\_on":null,"companion":"1.8 MW Vesta 100 Wind Turbine","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anaukam@ulbi.com; pfain@ulbi.com","contact\_info\_visible":false,"contact\_name":"Andy Naukam; Philip Fain","contact\_phone":"(315) 332-7100; 315-332-7100","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-02T20:44:05Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"\*\*\*Project on Hold\*\*\* Ultralife Corporation has been awarded a total of $3 million by the New York State Energy Research and Development Authority (NYSERDA) and the New York Power Authority (NYPA) following its successful application for grant funding under NYSERDA Program Opportunity Notice 1670. NYSERDA has awarded $1.5 million and NYPA is providing an additional $1.5 million in co-funding to support the battery project.\r\n\r\nUltralife will use the funding to demonstrate its new lithium ion battery energy storage system to support a wind turbine demonstration project planned for installation on the campus of the State University of New York at Canton (SUNY Canton).\r\n\r\nUltralife will manufacture, at its Newark, New York facility, an advanced 2 megawatt-hour lithium ion battery energy storage system for integration with a single wind turbine being planned for installation and operation in 2011. The energy storage system is based on Ultralife's existing modular lithium ion battery system technology, and will be designed to support the SUNY Canton electrical power demand with a capacity to store 2 megawatt-hours of electrical power, and deliver that power at a rate of up to 500 kilowatts for up to four hours. This jointly funded research and development initiative will be one of the first battery-integrated wind turbine projects installed in the United States.","developer":"Ultralife Corporation","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":1500000.0,"funding\_amount\_2":1500000.0,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Commercialization Incentive\*","funding\_source\_2":"Private/Third Party","funding\_source\_3":"","funding\_source\_details\_1":"NYSERDA - NYSERDA Program Opportunity Notice 1670","funding\_source\_details\_2":"New York Power Authority","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":266,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":44.608012,"longitude":-75.184657,"master\_project\_id":null,"name":"Ultralife SUNY Canton Wind Integration Demo","om\_contractor":"","organization":"","owner\_1":"State University of New York at Canton (SUNY Canton)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://investor.ultralifecorporation.com/releasedetail.cfm?ReleaseID=734861","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":500,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"New York","status":"Contracted","street\_address":"34 Cornell Drive","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-09T23:51:35Z","updated\_at\_by\_admin":"2016-08-09T23:51:35Z","updated\_by":null,"updated\_by\_email":null,"utility":"New York Power Authority (NYPA)","utility\_type":"Public Owned","vendor\_company":"Ultralife Corporation","zip":"13617"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Anchorage","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"joe.griffith@arctec.coop; gmroe@alaska.edu","contact\_info\_visible":false,"contact\_name":"Joe Griffith; George Roe","contact\_phone":"(907) 761-9212","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":30200000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-02T20:57:30Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This project appears to have never been built.\r\n\r\nThis project includes the installation of a 25 MW / 14 MWh Battery Energy Storage System (BESS) in the Anchorage area. This device will add stability to the system and provide a measure of “spin” to facilitate spooling-up alternative generation in the event of an outage. \r\n\r\nThe BESS is part of Alaska Railbelt Cooperative Transmission and Electric Company's (ARCTEC) Unconstrain Bradley Lake Hydroelectric Project. The project aims to improve the transmission system between Anchorage and Kenai.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":267,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":61.2163655,"longitude":-149.8889459,"master\_project\_id":null,"name":"Anchorage Area Battery Energy Storage System","om\_contractor":"","organization":"","owner\_1":"Alaska Railbelt Cooperative Transmission & Electric Company (ARCTEC)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://arctec.coop/wp-content/uploads/2012/11/arctecFY2014legislativepriorities.pdf","primary\_reference1":"","projected\_lifetime":"30.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":25000,"size\_kwh":0.566666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":34.0,"state":"Alaska","status":"Operational","street\_address":"TBD","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-26T02:47:44Z","updated\_at\_by\_admin":"2016-08-10T00:04:53Z","updated\_by":null,"updated\_by\_email":null,"utility":"ARCTEC","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"","zip":"99501"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Milton","commissioning\_on":"2022-11-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"TFWEAVER@aep.com","contact\_info\_visible":false,"contact\_name":"Tom Weaver","contact\_phone":"614-716-5829","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-02T21:46:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"AEP has pioneered the use of NaS batteries in the United States. Following testing at its Dolan Technology Center near Columbus, OH, the utility became the first U.S. electric company to deploy NaS batteries in 2002 when it installed and operated a 100 kW / 500 kVA demonstration unit in Gahanna, OH. In 2006, AEP installed a 1.2-MW stationary NaS battery near Charleston, WV. And in 2008, the utility installed three, 2 MW NaS batteries: one in Churubusco, IN.; one in Milton, WV; and one in Bluffton, OH. The 7.2 MW in NaS deployments are part of AEP’s electricity storage strategy that will also include transportable stationary batteries and distributed small scale energy storage systems.\r\n\r\nAEP deployed all of its NaS installations as a means to provide load leveling and alleviate transformer loading during summer peaks, defer capital upgrades, and offer emergency backup power to several hundred customers during electrical system outages. Ultimately, the NaS units offer AEP a degree of flexibility in determining the optimal approach for handling reliability problems. The units buy the utility time to decide whether to redesign a substation, build generation, or keep the storage units in place permanently. (All of the NaS systems are capable of being relocated for an estimated $85,000 to $115,000 if and when the company’s needs for storage change.)\r\n\r\nAEP’s 2-MW units were deployed in 2008, and are capable of providing islanding (backup power) for over seven hours when loss of utility power from the substation occurs. These newer installations can also perform load-triggered load leveling which, for example, allows the batteries to discharge just enough energy to hold a constrained substation transformer constant. As a result, a greater amount of energy can be reserved for islanding and battery life can be extended due to less frequent discharging.\r\n\r\nAEP uses an in-house SCADA system and developed custom software to control all of its batteries based on the loading transformer. The software essentially creates a feedback loop where the load of the transformer is compared to a desired maximum, and the battery output is then adjusted to achieve that maximum.\r\n\r\nIn addition, the unit sited at the Balls Gap substation in Milton, WV successfully islanded approximately 700 customers for roughly 30 minutes during a simulated outage staged on July 8, 2009. A live islanding event, meanwhile, took place in December 2009, during a snowstorm that islanded 25 customers for two days. Over that period, the Milton installation was able to minimize disruptions; customers experienced less than three minutes of continuous disruption during the two-day outage period.\r\n\r\nFinally, on October 20, 2009, the Milton, WV battery was successfully operated to alleviate load and voltage concerns during a load transfer event between substations. While the transformer at one station was taken out of service for maintenance, load was transferred to a different station which caused voltage and loading concerns. The Milton battery was deployed and mitigated these concerns.\r\n\r\nSource: \"Energy Storage and Project Demos\" Electric Power Energy Research (EPRI)\r\n\r\n","developer":"American Electric Power (AEP)","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":268,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/268/aep\_miltonwv.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/268/thumb\_aep\_miltonwv.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/268/partner\_aep\_miltonwv.png"}},"integrator\_company":"S&C Electric Company","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":38.4345321,"longitude":-82.1323637,"master\_project\_id":null,"name":"AEP Milton NaS Battery Energy Storage System","om\_contractor":"","organization":"","owner\_1":"American Electric Power (AEP)","owner\_2":"","owner\_type":"3","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"• System roundtrip AC efficiency: ~75% (Operational specifications can dramatically affect the overall efficiency; to extend the battery life, AEP utilized the DESS at 83% to 90% of its capacity during its first years of operation.) • NaS battery DC-DC efficiency: ~85% • PCS efficiency: ~95% (one-way)","primary\_reference":"https://www.aep.com/Newsroom/newsreleases/?id=1397","primary\_reference1":"https://energy.gov/sites/prod/files/ESS%202009%20Peer%20Review%20-%20Energy%20Storage%20Projects%20in%20AEP%20-%20Ali%20Nourai%2C%20AEP.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Grid-Connected Residential (Reliability)","service\_use\_case\_4":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":2000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"West Virginia","status":"Operational","street\_address":"2900 E Mud River Rd (Balls Gap Substation)","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T21:18:34Z","updated\_at\_by\_admin":"2016-08-10T00:24:53Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"American Electric Power","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":"25541"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Churubusco","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"TFWEAVER@aep.com","contact\_info\_visible":false,"contact\_name":"Tom Weaver","contact\_phone":"614-716-5829","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-02T22:10:21Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"AEP has pioneered the use of NaS batteries in the United States. Following testing at its Dolan Technology Center near Columbus, OH, the utility became the first U.S. electric company to deploy NaS batteries in 2002 when it installed and operated a 100kW/500kVA demonstration unit in Gahanna, OH. In 2006, AEP installed a 1.2-MW stationary NaS battery near Charleston, WV. And in 2008, the utility installed three, 2-MW NaS batteries: one in Churubusco, IN.; one in Milton, WV; and one in Bluffton, OH. The 7.2 MW in NaS deployments are part of AEP’s electricity storage strategy that will also include transportable stationary batteries and distributed small scale energy storage systems.\r\n\r\nAEP deployed all of its NaS installations as a means to provide load leveling and alleviate transformer loading during summer peaks, defer capital upgrades, and offer emergency backup power to several hundred customers during electrical system outages. 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The software essentially creates a feedback loop where the load of the transformer is compared to a desired maximum, and the battery output is then adjusted to achieve that maximum.\r\n\r\nSource: \"Energy Storage and Project Demos\" Electric Power Energy Research (EPRI)","developer":"American Electric Power (AEP)","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":269,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/269/churubusco.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/269/thumb\_churubusco.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/269/partner\_churubusco.png"}},"integrator\_company":"S&C Electric Company","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":41.2306034,"longitude":-85.3194208,"master\_project\_id":null,"name":"AEP Churubusco NaS Battery Energy Storage System","om\_contractor":"","organization":"","owner\_1":"American Electric Power (AEP)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"• System roundtrip AC efficiency: ~75% (Operational specifications can dramatically affect the overall efficiency; to extend the battery life, AEP utilized the DESS at 83% to 90% of its capacity during its first years of operation.) • NaS battery DC-DC efficiency: ~85% • PCS efficiency: ~95% (one-way)","primary\_reference":"https://energy.gov/sites/prod/files/2014/06/f17/EACJune2014-2Weaver.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":2000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Indiana","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T21:12:06Z","updated\_at\_by\_admin":"2014-11-07T21:33:34Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"American Electric Power","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Bluffton","commissioning\_on":"2022-10-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"TFWEAVER@aep.com","contact\_info\_visible":false,"contact\_name":"Tom Weaver","contact\_phone":"614-716-5829","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-02T22:24:02Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"AEP has pioneered the use of NaS batteries in the United States. Following testing at its Dolan Technology Center near Columbus, OH, the utility became the first U.S. electric company to deploy NaS batteries in 2002 when it installed and operated a 100kW/500kVA demonstration unit in Gahanna, OH. In 2006, AEP installed a 1.2-MW stationary NaS battery near Charleston, WV. And in 2008, the utility installed three, 2-MW NaS batteries: one in Churubusco, IN.; one in Milton, WV; and one in Bluffton, OH. The 7.2 MW in NaS deployments are part of AEP’s electricity storage strategy that will also include transportable stationary batteries and distributed small scale energy storage systems.\r\n\r\nAEP deployed all of its NaS installations as a means to provide load leveling and alleviate transformer loading during summer peaks, defer capital upgrades, and offer emergency backup power to several hundred customers during electrical system outages. Ultimately, the NaS units offer AEP a degree of flexibility in determining the optimal approach for handling reliability problems. The units buy the utility time to decide whether to redesign a substation, build generation, or keep the storage units in place permanently. (All of the NaS systems are capable of being relocated for an estimated $85,000 to $115,000 if and when the company’s needs for storage change.)\r\n\r\nAEP’s 2-MW units were deployed in 2008, and are capable of providing islanding (backup power) for over seven hours when loss of utility power from the substation occurs. These newer installations can also perform load-triggered load leveling which, for example, allows the batteries to discharge just enough energy to hold a constrained substation transformer constant. As a result, a greater amount of energy can be reserved for islanding and battery life can be extended due to less frequent discharging.\r\n\r\nAEP uses an in-house SCADA system and developed custom software to control all of its batteries based on the loading transformer. The software essentially creates a feedback loop where the load of the transformer is compared to a desired maximum, and the battery output is then adjusted to achieve that maximum.\r\n\r\nSource: \"Energy Storage and Project Demos\" Electric Power Energy Research (EPRI)","developer":"American Electric Power (AEP)","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":271,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/271/bluffton.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/271/thumb\_bluffton.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/271/partner\_bluffton.png"}},"integrator\_company":"S&C Electric Company","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.8953301,"longitude":-83.8888288,"master\_project\_id":null,"name":"AEP Bluffton NaS Energy Storage System","om\_contractor":"","organization":"","owner\_1":"American Electric Power (AEP)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"• System roundtrip AC efficiency: ~75% (Operational specifications can dramatically affect the overall efficiency; to extend the battery life, AEP utilized the DESS at 83% to 90% of its capacity during its first years of operation.) • NaS battery DC-DC efficiency: ~85% • PCS efficiency: ~95% (one-way)","primary\_reference":"https://energy.gov/sites/prod/files/2014/06/f17/EACJune2014-2Weaver.pdf","primary\_reference1":"","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":2000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Ohio","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T21:11:25Z","updated\_at\_by\_admin":"2014-11-07T21:33:52Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"American Electric Power","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":"2022-11-30","approval\_status":2,"city":"Reading","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jwrettberg@nyseg.com","contact\_info\_visible":false,"contact\_name":"James Rettberg","contact\_phone":"607-762-8813","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":125006103.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-02T23:03:58Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"\*\*\*09/2012: NYSEG has concluded that the economics of the project are not favorable for development in the current and forecast wholesale electric market in New York State, and further project development work is not warranted.\*\*\*\r\nRead the final project report here: http://goo.gl/HbiWQ9\r\n\r\nNew York State Electric & Gas (NYSEG) intended to build an advanced compressed air energy storage (CAES) plant with a rated capacity of 150 MW (2.4 GWh) using an existing 4.5 million cubic foot underground salt cavern in Reading, New York. The plant was to be sited between the bulk of U.S. wind resources and the heavy population centers of the East Coast. The plant will have the capacity to operate 16 hours a day and will provide energy arbitrage for approximately 2,300-2,500 hours each year. It will use off-peak electricity to compress air into the cavern. When electricity is needed the air will be withdrawn, heated, and passed through a turbine to drive an electric generator, burning one-third the amount of fuel compared to conventional combustion turbines. NYSEG’s CAES plant will provide flexible generation capability to accommodate fluctuations in load. The plant will be tied to NYSEG’s cross-state 230 kV/345 kV transmission system that feeds major metropolitan centers in Central New York. The 230 kV line is the recipient of a large proportion of wind power and is tied to the New York City load areas. It will provide redundancy in capacity, ensure against congestion and power fluctuations, and can provide improved power quality to the grid. Iberdrola USA, the parent of NYSEG, plans to conduct a feasibility study in the future to determine the ability to increase the plant’s capacity to 360 MW or greater.","developer":"Iberdrola USA","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":29561142.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":272,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/272/nyseg.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/272/thumb\_nyseg.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/272/partner\_nyseg.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":42.415934,"longitude":-76.896832,"master\_project\_id":null,"name":"NYSEG Seneca/Watkins Glen CAES Project","om\_contractor":"","organization":null,"owner\_1":"New York State Electric & Gas (NYSEG)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.smartgrid.gov/project/new\_york\_state\_electric\_and\_gas\_advanced\_compressed\_air\_energy\_storage","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Black Start","service\_use\_case\_5":"Transmission Congestion Relief","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"New York","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"In-ground Compressed Air Storage","technology\_type\_l1":"In-ground Compressed Air Storage","technology\_type\_l2":"Compressed Air Storage","technology\_type\_l3":"Electro-mechanical","updated\_at":"2014-09-05T14:37:44Z","updated\_at\_by\_admin":"2014-09-05T14:35:55Z","updated\_by":null,"updated\_by\_email":null,"utility":"New York State Electric & Gas (NYSEG)","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Dinorwig","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"info@fhc.co.uk ","contact\_info\_visible":false,"contact\_name":"Dinorwig Power Station","contact\_phone":"01286 870166","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2013-05-03T23:42:08Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Dinorwig is comprised of 16km of underground tunnels, deep below Elidir mountain. Its construction required 1 million tonnes of concrete, 200,000 tonnes of cement and 4,500 tonnes of steel.\r\n\r\nThe station's six powerful generating units stand in Europe's largest man-made cavern. Adjacent to this lies the main inlet valve chamber housing the plant that regulates the flow of water through the turbines.\r\n\r\nDinorwig's reversible pump/turbines are capable of reaching maximum generation in less than 16 seconds. Using off-peak electricity the six units are reversed as pumps to transport water from the lower Llyn Peris reservoir to the higher Marchlyn Mawr reservoir. Llyn Peris (lower reservoir) rises during the day, then falls back overnight. The smaller and higher Marchlyn Mawr reservoir up in the hills does the reverse, dropping as much as 121ft (37 metres) during the day.","developer":"National Grid","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":276,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/276/dinorwig.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/276/thumb\_dinorwig.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/276/partner\_dinorwig.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":53.1340503,"longitude":-4.1139368,"master\_project\_id":null,"name":"Dinorwig Power Station","om\_contractor":"First Hydro Company","organization":null,"owner\_1":"First Hydro Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Synchronised and spinning-in-air emergency load pick-up rate from standby: 0 to 1,320 MW in 12 seconds; Voltage: 420 kV; Current Rating: 4,000 A","primary\_reference":"http://www.fhc.co.uk/dinorwig.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Load Following (Tertiary Balancing)","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1728000,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Wales","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Closed-loop Pumped Hydro Storage","technology\_type\_l1":"Closed-loop Pumped Hydro Storage","technology\_type\_l2":"Closed-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-16T22:35:18Z","updated\_at\_by\_admin":"2016-05-16T22:35:18Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Irvine","commissioning\_on":"2022-10-01","companion":"Residential PV Solar System","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Ardalan.kamiab@sce.com","contact\_info\_visible":false,"contact\_name":"Ardalan \"Ed\" Kamiab","contact\_phone":"(714) 379-7914","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"LG Chem Power Inc.","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-06T17:45:52Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Southern California Edison (SCE) and its partners will deploy advanced Smart Grid (SG) technologies in an integrated system to be more reliable, secure, economic, efficient, safe, and environmentally friendly. The technology demonstrations will include three main areas: (1) Energy Smart Customer Devices such as smart appliances, home scale energy storage, and photovoltaic (PV) solar systems to achieve Zero Net Energy homes and Zero Grid Impact electric vehicle (EV) charging at work; (2) Year 2020 Distribution System including distribution automation with looped circuit topology, advanced voltage/VAR control, advanced distribution equipment, smart metering, utility-scale storage, and dispatched renewable distributed generation; and (3) a Secure Energy Network to demonstrate end-to-end management of a complex high performance telecommunication system linking the CAISO to SCE’s back office, field networks, and energy smart devices in the home. Other specific aspects of sub-projects include: distribution circuit constraint management, enhanced circuit efficiency and power quality, self-healing circuits, deep grid situational awareness, and end-to-end cyber security and interoperability. The demonstration will be conducted in Irvine, California and will include two 12kV distribution circuits fed by SCE’s MacArthur Substation, residential homes, and EV charging in a parking lot at the University of California, Irvine.\r\n\r\nFourteen residential energy storage units (RESUs) have been installed as part of the Irvine Smart Grid Demonstration (ISGD). Each RESU contains a 4 kilowatt inverter and 10 kilowatt-hours of LG Chem Ltd. automotive-grade lithium-ion batteries, with a total capacity of 56 kW. The RESU provides backup to secure loads in the event of an outage, and couples up to 4 kW of photovoltaic solar panels with the battery. These systems combine a number of control mechanisms to allow valuation of various operating or control modes. The RESUs communicate with SCE SmartConnect Meters and a remote RESU Server to gather published prices, instantaneous demand, Demand Responses, and utility control information. Throughout the two-year demonstration project, the RESUs will be operated in six different operating modes to investigate their value on the customer’s energy usage and SCE’s distribution circuit. The RESUs were commissioned between September 23 and October 1, 2013. 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Smart Grid Demonstration: RESU","om\_contractor":"","organization":null,"owner\_1":"Southern California Edison","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.smartgrid.gov/project/southern\_california\_edison\_company\_irvine\_smart\_grid\_demonstration","primary\_reference1":null,"projected\_lifetime":"2.0","rdd\_status":"No","research\_desc":"","research\_institution":"UC Irvine, Electric Power Research Institute (EPRI)","research\_institution\_link":"http://www.apep.uci.edu/3/AboutTheCenter/default.aspx, http://www.epri.com/Pages/Default.aspx","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Electric Bill Management with Renewables","service\_use\_case\_4":"Grid-Connected Residential (Reliability)","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":56,"size\_kwh":2.5,"size\_kwh\_hours":2,"size\_kwh\_minutes":30.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-07-31T22:32:34Z","updated\_at\_by\_admin":"2014-07-31T22:32:34Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"LG Chem 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available.","primary\_reference":"http://greensmith.us.com/news/50-greensmith-software-applies-self-correction-to-energy-storage-issues","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":5,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Hawaii","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-12-22T18:53:26Z","updated\_at\_by\_admin":"2014-08-12T20:51:57Z","updated\_by":null,"updated\_by\_email":null,"utility":"Hawaiian Electric Company","utility\_type":"Investor Owned","vendor\_company":"Greensmith Energy","zip":""}},{"project":{"announcement\_on":"2022-05-06","approval\_status":1,"city":"Promontory","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"KevinRjensen@atk.com","contact\_info\_visible":false,"contact\_name":"Kevin Jensen","contact\_phone":"435-863-5379","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Rocky Mountain Power","contractor\_2":"P&E Automation","contractor\_3":"","cost\_CAPEX":3600000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-06T19:02:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Alliant Techsystems (ATK) Launch Systems project takes place at a single customer site – but, it’s a large one. ATK Launch Systems in Promontory, Utah comprises over 540 buildings on a sprawling 19,900-acre site accessible by 75 miles of roads. Their power system of three main substations and 60 miles of power lines deliver about 17 MW (on-peak) to the facilities, with an annual energy bill of over $15 million. In recent years, utility tariff changes have significantly increased the portion of the monthly bills attributable to demand charges. ATK’s Corporate Energy Team, established in 2003, and has already implemented a number of energy saving projects, realizing energy costs reductions of $2 million/year or more. As a result of a comprehensive plant-wide energy assessment (partially funded by DOE) in 2006/2007, ATK identified a new set of energy projects at the Promontory site.\r\n\r\nThis project will integrate an ambitious and highly diverse set of distributed resources. These include four heat recovery systems using organic Rankin cycle (ORC) generators connected to Ormat energy converters, for a total of 1400 kW. Heat for the system will be supplied by a concentrating solar thermal array, air compressor waste heat and low pressure steam. The project will also incorporate about 140 kW of wind turbines, a yet-to-be-determined amount of hydro turbine capacity, and about 40 kW of micro-hydro turbines. For storage, the project includes up to 1440 kW of pumped hydro capacity for two - four hours, and an above-ground compressed air energy storage (CAES) and generation system (80 kW capacity for 30-60 minutes).","developer":"ATK Launch Systems","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":1600000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Office of Electricity and Reliability – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - Renewable and Distributed Systems Integration (RDSI) Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":280,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.665573,"longitude":-112.435667,"master\_project\_id":null,"name":"Promontory Microgrid CAES - ATK Launch Systems","om\_contractor":"","organization":"ATK Launch Systems","owner\_1":"ATK Launch Systems","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"https://www.smartgrid.gov/files/Renewable\_Distributed\_Systems\_Integration\_Demonstration\_Proj\_200908.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":80,"size\_kwh":0.75,"size\_kwh\_hours":0,"size\_kwh\_minutes":45.0,"state":"Utah","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Modular Compressed Air Storage","technology\_type\_l1":"Modular Compressed Air Storage","technology\_type\_l2":"Compressed Air Storage","technology\_type\_l3":"Electro-mechanical","updated\_at":"2018-03-04T01:43:16Z","updated\_at\_by\_admin":"2014-07-11T14:49:27Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Rocky Mountain Power","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-05-06","approval\_status":2,"city":"Las Vegas","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"SChatterjee@nvenergy.com","contact\_info\_visible":false,"contact\_name":"Sarah Chatterjee, Engineer","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Pulte Homes","contractor\_2":"NV Energy","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-06T20:02:33Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The University of Nevada, Las Vegas (UNLV) project started in 2008 and is unique among RDSI projects in its highly aggressive goal for reduction in peak electricity demand. The 65% reduction goal at the feeder/substation level is more than four times higher than the minimum goal set by DOE for these projects. UNLV and its partners plan to design and build a new housing development of approximately 180 homes that are designed from the ground up for energy efficiency and incorporation of advanced energy technology. In the planned “Villa Trieste” community in Las Vegas, the homes will feature roof-integrated 1.76-2.43 kW photovoltaic (PV) systems, tankless water heaters, Energy Star appliances, low-E windows, advanced meters, advanced automated appliances and thermostat controls. Outside the home, the project will also incorporate demonstrations to overcome electricity grid integration, control, and communications issues. This includes advanced wireless mesh network technology, residential energy storage, and a research component on how customers interact with in-home energy technologies.\r\n\r\nOne 8.8 kWh battery energy storage system has been installed in a model home in the community to date.\r\n","developer":"University of Nevada, Las Vegas","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":5724709.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - Renewable and Distributed Systems Integration (RDSI) Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":282,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/282/Villa\_Trieste.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/282/thumb\_Villa\_Trieste.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/282/partner\_Villa\_Trieste.jpg"}},"integrator\_company":"Silent Power","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.114646,"longitude":-115.172816,"master\_project\_id":null,"name":"UNLV RDSI Demonstration Project","om\_contractor":"","organization":null,"owner\_1":"Nevada Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.smartgrid.epri.com/doc/UNLV%20RDSI%20Final.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Grid-Connected Residential (Reliability)","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":9,"size\_kwh":0.95,"size\_kwh\_hours":0,"size\_kwh\_minutes":57.0,"state":"Nevada","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-09-05T14:38:55Z","updated\_at\_by\_admin":"2014-08-07T18:59:10Z","updated\_by":null,"updated\_by\_email":null,"utility":"Nevada Power Company","utility\_type":"Investor Owned","vendor\_company":"Saft","zip":""}},{"project":{"announcement\_on":"2022-05-06","approval\_status":1,"city":"Spring","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"MiltonLHolloway@sbcglobal.net","contact\_info\_visible":false,"contact\_name":"Milton L. Holloway, CCET","contact\_phone":"(512) 472-3800","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-06T21:23:44Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Discovery at Spring Trails was cancelled.\r\n\r\nThis project was slated to include up to 30 home installations, each with a battery rated at 1 kW.\r\n\r\nThe Center for Commercialization of Electronic Technologies (CCET) and partners planned to install and test equipment in the Discovery Center which serves as the technology integration test and demonstration laboratory as well as a community outreach and education facility.\r\n\r\nTwo housing developments were going to be tested during the project. One was an existing Houston community called Discovery at Spring Trails that would have equipped homes with solar units, residential energy storage (1kW, 12v Valence battery per household), and energy management systems. The experiments control group was planned to be a neighboring community called Legends Ranch, which has not taken steps to improve energy efficiency.\r\n\r\nGoals/Objectives\r\n• Improve grid reliability\r\n• Create a template for an advanced demand-responsive Smart Grid community\r\n• Refine a process for selecting the best location to monitor wind energy transmission\r\n• Develop a suite of regional-level electric grid monitoring and load management\r\nsystems for wind power\r\n• Enable consumers to better monitor and manage their energy usage and cost through Smart homes energy management systems","developer":"Center For Commercialization of Electric Technology (CCET)","electronics\_provider":"Sunverge","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":283,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/283/valence.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/283/thumb\_valence.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/283/partner\_valence.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":30.1200111,"longitude":-95.3749799,"master\_project\_id":null,"name":"Discovery at Spring Trails Residential Energy Storage","om\_contractor":"","organization":"","owner\_1":"Municipal Utility District #119","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://ercot.com/content/meetings/dswg/keydocs/2011/0830/Additional\_material-CCET\_Project.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":30,"size\_kwh":14.0,"size\_kwh\_hours":14,"size\_kwh\_minutes":0.0,"state":"Texas","status":"De-Commissioned","street\_address":"Riley Fuzzell Road","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-24T16:09:32Z","updated\_at\_by\_admin":"2017-10-23T23:02:45Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Valence, Younicos","zip":"77386"}},{"project":{"announcement\_on":"2022-06-03","approval\_status":2,"city":"La Jolla","commissioning\_on":"2022-03-01","companion":"PV Solar","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"bwashom@ucsd.edu","contact\_info\_visible":false,"contact\_name":"Byron Washom, Director of Strategic Energy Initiatives","contact\_phone":"(858) 869-5805","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"UC San Diego","contractor\_2":"BMW","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-06T22:17:59Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The BMW project is fully sponsored by BMW, and will consist of utilizing used mini-E electric vehicle batteries, and will have about 108 kW of power capacity and 2-3 hours of energy storage. The system will be integrated with PV solar and possibly fast EV DC charging.","developer":"","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"California Public Utilities Commission","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":285,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/285/CS5-UCSD-BMW\_Photo1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/285/thumb\_CS5-UCSD-BMW\_Photo1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/285/partner\_CS5-UCSD-BMW\_Photo1.jpg"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":32.8769207,"longitude":-117.2361478,"master\_project\_id":"189:263:286:1257","name":"UCSD BMW 2nd Life EV Energy Storage System","om\_contractor":"","organization":null,"owner\_1":"UC San Diego","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://rmp.ucsd.edu/strategic-energy/storage/index.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"The campus receives Department of Energy/National Renewable Energy Laboratory funding for the endurance testing of 2nd Life electric vehicle batteries in stationary applications. While electric vehicles are charging at campus stations, they can provide electricity to the campus microgrid, if needed, creating a vehicle-to-grid energy storage system.","research\_institution":"UC San Diego","research\_institution\_link":"http://rmp.ucsd.edu/strategic-energy/storage/index.html","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":108,"size\_kwh":1.66666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":40.0,"state":"California","status":"Operational","street\_address":"9500 Gilman Drive","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-07-23T19:50:21Z","updated\_at\_by\_admin":"2014-07-23T19:50:21Z","updated\_by":null,"updated\_by\_email":null,"utility":"UC San Diego Microgrid","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"BMW","zip":"92093"}},{"project":{"announcement\_on":"2022-05-06","approval\_status":1,"city":"La Jolla","commissioning\_on":"2022-09-01","companion":"2.2 MW of campus PV and off peak CHP","construction\_on":"2022-06-01","contact\_city":"","contact\_country":"","contact\_email":"bwashom@ucsd.edu; wtorre@ucsd.edu","contact\_info\_visible":false,"contact\_name":"Byron Washom, Director of Strategic Energy Initiatives; Bill Torre","contact\_phone":"(858) 869-5805","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-06T22:26:31Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The University of San Diego installed 2.5 MW / 5 MWh of containerized batteries provided from energy storage technology provider BYD.\r\n\r\n• 60% Funded with CPUC Self Generation Incentive Program (SGIP)\r\n• 40% Co-funded by UCSD and BYD \r\n• 2.5 MW/ 5 Mwhr energy storage complements UCSD’s 2.2 MW of campus PV and off peak CHP\r\n• Competitive Solicitation, Turn Key Design/Build\r\n• Awarded to BYD, Lithium-ion Iron-Phosphate battery\r\n• Site Construction started May, 2015\r\n• System Installation started June, 2015\r\n• System Installation completed Sept. 2015","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":3250000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Commercialization Incentive\*","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"California Public Utilities Commission - Self Generation Incentive Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":286,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/286/ucsdbyd.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/286/thumb\_ucsdbyd.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/286/partner\_ucsdbyd.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.8769207,"longitude":-117.2361478,"master\_project\_id":null,"name":"UCSD - BYD Energy Storage System","om\_contractor":"","organization":"","owner\_1":"UC San Diego","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"https://research.ucsd.edu/","primary\_reference1":"http://www.sandia.gov/ess/docs/pr\_conferences/2015/PR%204/2-Torre.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"Public University","research\_institution":"UCSD - University of California San Diego","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2500,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"9500 Gilman Dr","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T18:31:56Z","updated\_at\_by\_admin":"2016-09-15T19:13:48Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"UC San Diego Microgrid","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"BYD","zip":"92093"}},{"project":{"announcement\_on":"2022-04-30","approval\_status":2,"city":"New York","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"pbouchard@eosenergystorage.com","contact\_info\_visible":false,"contact\_name":"Philippe Bouchard","contact\_phone":"212-628-7191","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":500000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-06T22:56:54Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Eos Energy Storage and Con Edison, a subsidiary of Consolidated Edison, Inc. announced a trailblazing partnership to install and test Eos’s cutting-edge energy storage technology within the utility’s New York City facilities. Eos is currently commercializing a safe, low cost, and long-lasting grid-scale battery technology that can reduce customer costs, defer utility infrastructure upgrades and enhance power quality and reliability.\r\n\r\nSupported by funding from the New York State Energy Research and Development Authority (NYSERDA), the pilot will demonstrate the benefits of distributed energy storage.\r\n\r\nEos stated that the pilot, targeted to begin in early 2014, is a milestone in the scale-up and commercialization of Eos’s core product, a 1MW/6MWh grid-scale battery called the Eos Aurora. The Aurora is backed by Eos’s novel, low-cost and proprietary zinc hybrid cathode technology, which has a 75% round-trip efficiency rate and a 10,000-cycle/30-year lifetime.\r\n\r\nThe unit is currently undergoing field testing at the BEST Test and Commercialization Center: http://goo.gl/vkD9Ia","developer":"Con Edison","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":250000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"New York State Energy Research and Development Authority (NYSERDA)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":287,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/287/EOS-Aurora-battery.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/287/thumb\_EOS-Aurora-battery.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/287/partner\_EOS-Aurora-battery.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.7143528,"longitude":-74.0059731,"master\_project\_id":null,"name":"Con Edison/Eos Energy Storage Distributed Energy Storage Pilot","om\_contractor":"","organization":null,"owner\_1":"Con Edison","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"75% RTE","primary\_reference":"http://www.businesswire.com/news/home/20130430007031/en/Eos-Energy-Storage-Con-Edison-Announce-Groundbreaking","primary\_reference1":null,"projected\_lifetime":"30.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":1000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"New York","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Air Battery","technology\_type\_l1":"Zinc Air Battery","technology\_type\_l2":"Metal Air Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-08T01:37:51Z","updated\_at\_by\_admin":"2014-08-08T01:37:51Z","updated\_by":null,"updated\_by\_email":null,"utility":"Consolidated Edison Company of New York (Con Edison)","utility\_type":"Investor Owned","vendor\_company":"Eos Energy Storage","zip":""}},{"project":{"announcement\_on":"2022-05-01","approval\_status":1,"city":"Vancouver","commissioning\_on":"2022-04-19","companion":"","construction\_on":"2022-12-01","contact\_city":"","contact\_country":"","contact\_email":"basil.waugh@ubc.ca","contact\_info\_visible":false,"contact\_name":"Basil Waugh UBC Public Affairs","contact\_phone":"604.822.2048","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":5100000.0,"cost\_OPEX":null,"country":"Canada","created\_at":"2013-05-07T00:00:00Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project integrates one megawatt hour of stored energy — enough to power an average home for 1,000 hours — into a power grid that supports three major campus facilities.\r\n\r\nInitially created in response to the university’s need for emergency back-up power at UBC’s Bioenergy Research and Demonstration Facility (BDRF), the energy storage system will advance research on integrating renewable-energy sources, like solar and wind, into large power grids.","developer":"University of British Columbia","electronics\_provider":"Alpha Technologies","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":288,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":49.261045,"longitude":-123.248794,"master\_project\_id":null,"name":"Vancouver Electrochemical Energy Storage Project - University of British Columbia","om\_contractor":"","organization":"","owner\_1":"University of British Columbia","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available. System will be evaluated for 24 months","primary\_reference":"http://www.publicaffairs.ubc.ca/2013/04/19/vancouver-campus-deploys-new-5-1m-smart-grid-energy-storage-system/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"University of British Columbia","research\_institution\_link":"http://research.ubc.ca/vpri/vpri-home","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"British Columbia","status":"Operational","street\_address":"2260 West Mall, Rm 2255 ","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Nickel Manganese Cobalt Battery","technology\_type\_l1":"Lithium Nickel Manganese Cobalt Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-16T07:14:16Z","updated\_at\_by\_admin":"2014-07-03T16:43:52Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Corvus Energy","zip":"V6T 1Z4"}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Everett","commissioning\_on":"2022-02-09","companion":"","construction\_on":"2022-11-01","contact\_city":"Everett","contact\_country":"United States","contact\_email":"jazyskowski@snopud.com","contact\_info\_visible":true,"contact\_name":"Jason Zyskowski","contact\_phone":"425-783-4332","contact\_state":"Washington","contact\_street\_address":"1802 - 75th Street S.W.","contact\_zip":"98206-1107","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-07T20:52:05Z","created\_by\_id":97,"debt\_investor":"","decommissioning\_on":null,"desc":"Snohomish County Public Utility District (SNOPUD) and 1Energy Systems will partner to develop and deploy an innovative approach to energy storage, aimed at helping electric utilities increase their use of renewable energy and improve overall reliability. The MESA-1 installation will be the first energy storage system built on the Modular Energy Storage Architecture (MESA), an innovative approach to energy storage based on open, non-proprietary industry standards. \r\n\r\nTwo battery systems will be installed for the system: MESA 1a utilize a Parker Hannifin Power Conversion System and a Mitsubishi 1 MW (500 kWh) Li-Ion battery.\r\n\r\nAlstom Grid and faculty from the University of Washington will join the project to collaborate on research, analysis and design of technology interfaces. 1Energy will lead the selection of future MESA partners who will provide batteries, power conversion and balance-of-system components.\r\n\r\n","developer":"Snohomish County Public Utility District No. 1","electronics\_provider":"Parker Hannifin Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":289,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/289/hardeson\_substation.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/289/thumb\_hardeson\_substation.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/289/partner\_hardeson\_substation.jpg"}},"integrator\_company":"1Energy Services, LLC","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":47.9366303,"longitude":-122.2479417,"master\_project\_id":null,"name":"SNOPUD MESA 1a Project","om\_contractor":"Snohomish County Public Utility District No. 1","organization":"Snohomish County Public Utility District No. 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Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Washington","status":"Operational","street\_address":"910 Shuksan Way","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:02:46Z","updated\_at\_by\_admin":"2016-08-02T23:08:09Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Snohomish County Public Utility District","utility\_type":"Public Owned","vendor\_company":"Lithium Energy Japan (GS Yuasa International Ltd. and Mitsubishi)","zip":"98203"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Austin","commissioning\_on":"2022-03-11","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3232","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-08T23:28:10Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In conjunction with Austin Energy, Ice Energy has completed the installation of an Ice Bear distributed energy storage project at the South Austin Recreational Center, located in South-Central Austin.","developer":"Austin Energy","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":290,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Ice Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":30.241834,"longitude":-97.76795,"master\_project\_id":null,"name":"South Austin Recreational Center Distributed Energy Storage Pilot - Austin Energy","om\_contractor":"","organization":"Ice Energy","owner\_1":"Austin Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.tdworld.com/test-monitor-amp-control/distributed-energy-storage-pilot-project-installed-austin","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":15,"size\_kwh":4.66666666666667,"size\_kwh\_hours":4,"size\_kwh\_minutes":40.0,"state":"Texas","status":"Operational","street\_address":"1100 Cumberland Road","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-11T01:06:52Z","updated\_at\_by\_admin":"2014-07-02T16:39:29Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Austin Energy","utility\_type":"Public Owned","vendor\_company":"Ice Energy","zip":"78704"}},{"project":{"announcement\_on":"2022-05-08","approval\_status":1,"city":"Las Vegas","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3232","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-08T23:55:28Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"A national retail chain embraced the opportunity for one of its new flagship Las Vegas-area stores to participate in an energy storage pilot program sponsored by local utility Nevada Power (NV Energy) that offered the no-cost installation of two Ice Bear energy storage units. Of the fifteen\r\nair-conditioning units on the store’s roof top, the Ice Bear systems were connected to two Carrier Weathermaster high-efficiency 4-ton and 5-ton units.\r\nProviding an alternative to traditional demand response programs as a solution for reducing peak demand, Ice Bear storage technology shifts energy consumption from daytime hours to night-time hours – peak to off-peak. In the process, it drastically reduces peak electricity use and shrinks the environmental footprint for buildings like this one — all without any operational or behavioral change.\r\nThe extreme desert heat conditions, which normally degrade an AC system’s operation, had no effect on the energy storage units. The\r\nhotter the temperature, the better the Ice Bear unit’s relative performance. The data concluded that the Ice Bears delivered 15-20 % greater cooling efficiency than a typical roof top AC unit during peak hours while using a fraction of peak electricity.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":291,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/291/LVicebear.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/291/thumb\_LVicebear.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/291/partner\_LVicebear.png"}},"integrator\_company":"Ice Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.114646,"longitude":-115.172816,"master\_project\_id":null,"name":"Ice Energy Big Box Retailer Project","om\_contractor":"","organization":"Ice Energy","owner\_1":"Nevada Power Company","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.ice-energy.com","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":38,"size\_kwh":4.66666666666667,"size\_kwh\_hours":4,"size\_kwh\_minutes":40.0,"state":"Nevada","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-11T08:21:35Z","updated\_at\_by\_admin":"2014-07-02T18:57:54Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Nevada Power Company","utility\_type":"Investor Owned","vendor\_company":"Ice Energy","zip":""}},{"project":{"announcement\_on":"2022-05-09","approval\_status":1,"city":"Howell","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3232","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-09T00:07:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Staples installed Ice Bear distributed energy storage units at its Howell, NJ retail outlet in 2008. It is a representative single-story Staples retail store cooled by a 60-ton array of Lennox high efficiency units.\r\nThe Ice Bear system supplements a commercial building’s AC unit by using more efficient, lower cost off-peak energy at night to make ice. The ice produced cools the building – rather than the AC unit’s compressor – during the warmest daytime peak hours.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":292,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/292/newjerseyice.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/292/thumb\_newjerseyice.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/292/partner\_newjerseyice.jpg"}},"integrator\_company":"Ice Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.1421639,"longitude":-74.2255465,"master\_project\_id":null,"name":"Ice Energy Storage at Staples Retailer","om\_contractor":"","organization":"Ice Energy","owner\_1":"Staples, Inc.","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Previously, on an average summer day, the Staples store in Howell store experienced a daily load profile of approximately 150-160 kilowatts. With the Ice Bear storage units installed, the daily load profile dropped to 120-130 kilowatts, a reduction of nearly 25%.","primary\_reference":"http://www.ice-energy.com","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":38,"size\_kwh":4.66666666666667,"size\_kwh\_hours":4,"size\_kwh\_minutes":40.0,"state":"New Jersey","status":"Operational","street\_address":"4514 U.S. 9","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-11T00:58:54Z","updated\_at\_by\_admin":"2014-07-02T18:56:06Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Jersey Central Power and Light Company","utility\_type":"Investor Owned","vendor\_company":"Ice Energy","zip":"07731"}},{"project":{"announcement\_on":"2022-11-22","approval\_status":1,"city":"New Castle","commissioning\_on":"2022-11-22","companion":"","construction\_on":"2022-08-01","contact\_city":"New Castle","contact\_country":"United States","contact\_email":"jshindle@axionpower.com","contact\_info\_visible":false,"contact\_name":"Jack Shindle","contact\_phone":"724.654.9300","contact\_state":"PA","contact\_street\_address":"3601 Clover Lane","contact\_zip":"16105","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-09T13:38:52Z","created\_by\_id":99,"debt\_investor":"","decommissioning\_on":null,"desc":"Axion Power International, Inc., the developer of advanced lead-carbon PbC® batteries and energy storage systems, on November 22, 2011, integrated its PowerCube™ battery energy storage and battery system as a power resource for the PJM Regulation Market, which serves 58 million people in all or parts of 13 states and the District of Columbia. The use of PowerCube on the PJM market marks the first time an external energy storage system has been integrated into a major power grid. Axion Power, working in partnership with Philadelphia-based Viridity Energy on this and other projects, is initially participating in the PJM market as a 100 kw resource that will soon be ramped to higher kw levels. As a curtailment service provider in PJM, Viridity Energy will be managing the Axion PowerCube, a highly mobile and scalable 500kw/250kw Battery Energy Storage System. ","developer":"","electronics\_provider":"Eaton","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":293,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/293/Axion\_picture.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/293/thumb\_Axion\_picture.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/293/partner\_Axion\_picture.jpg"}},"integrator\_company":"Axion Power International Inc.","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":41.0648451,"longitude":-80.3624375,"master\_project\_id":null,"name":"Axion PowerCube for PJM (New Castle, PA)","om\_contractor":"Axion Power International Inc.","organization":"Axion Power International Inc.","owner\_1":"Axion Power International Inc","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.axionpower.com/press/press-release/2011-11-22-axion-powers-powercube-battery-energy-storage-system-integrated-into-pjm-utility-grid","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":500,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Pennsylvania","status":"Operational","street\_address":"3601 Clover Lane","systems\_integration":"","technology\_classification":"","technology\_type":"Lead Carbon Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-31T19:16:25Z","updated\_at\_by\_admin":"2014-07-24T15:01:15Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Penn Power","utility\_type":"Investor Owned","vendor\_company":"Axion Power International Inc.","zip":"16105"}},{"project":{"announcement\_on":"2022-05-09","approval\_status":1,"city":"Fort Collins","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3232","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-09T16:30:05Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Combining Northern Colorado’s hot, dry summers with FiberLok’s temperature-sensitive manufacturing process was yielding some\r\ntruly challenging numbers for the company. Whenever the outside temperature topped 95 degrees, temperatures in the plant’s\r\nprocess area would exceed tolerance, and humidity would drop below acceptable levels. This resulted in lost production time and increased product-return costs.\r\nFiberLok adopted a night-shift-only summer schedule, adding $20,000 in overtime costs to a $11,000 monthly utility bill. All the while, the company continued to search for a solution that wouldn't increase its peak energy load, didn't require extra equipment to keep the relative humidity within acceptable levels, and wouldn’t necessitate excessive modification to the building’s existing air ducting.\r\nFiberLok installed two Ice Bear energy storage systems from Ice Energy to address these issues.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":295,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/295/fiberlokice.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/295/thumb\_fiberlokice.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/295/partner\_fiberlokice.jpg"}},"integrator\_company":"Ice Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":40.5787485,"longitude":-105.0049308,"master\_project\_id":null,"name":"Ice Energy Manufacturing Facility Project","om\_contractor":"","organization":"Ice Energy","owner\_1":"FiberLok","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Utility bills were reduced 15%","primary\_reference":"https://www.achrnews.com/articles/108018-ice-storage-technology-improves-manufacturing-environment","primary\_reference1":"http://money.cnn.com/magazines/fsb/fsb\_archive/2007/02/01/8399931/index.htm","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":24,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Colorado","status":"Operational","street\_address":"811 Stockton Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-11T08:57:11Z","updated\_at\_by\_admin":"2014-07-02T18:54:54Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Xcel Energy","utility\_type":"Investor Owned","vendor\_company":"Ice Energy","zip":"80524"}},{"project":{"announcement\_on":"2022-05-09","approval\_status":1,"city":"Redding","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3232","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Developer Imperial Group ","contractor\_2":"Nichols Melburg & Rossetto","contractor\_3":"Trane, Timberline Heating and Air","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-09T16:48:18Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The new Park Marina building, housing the Social Security Administration, needed efficient, sustainable HVAC systems. The Imperial Group development company teamed with architect Nichols Melburg & Rossetto, Redding Electric Utility (REU), Trane, Ice Energy and Timberline Heating and Air to install eleven Ice Bear® energy storage units, each coupled with a Trane high-efficiency Precedent™ rooftop air conditioner.\r\n\r\nThe energy storage system helps to reduce ratepayer costs by shifting the air conditioning load to nighttime when energy costs are less and the compressors run more efficiently.","developer":"Redding Electric Utility (REU)","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":299,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/299/Reddingice.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/299/thumb\_Reddingice.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/299/partner\_Reddingice.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":40.582701,"longitude":-122.370389,"master\_project\_id":null,"name":"Park Marina Building - Redding Electric Utility","om\_contractor":"","organization":"Ice Energy","owner\_1":"City of Redding","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"https://www.americanstandardair.com/content/dam/Trane/Commercial/global/case-studies/commercial-real-estate/park-marina-building/CASE-Park-Marina%2012-1-2010.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":132,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"2155 Park Marina Drive","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-11T09:12:39Z","updated\_at\_by\_admin":"2014-07-02T17:13:49Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Redding Electric Utility","utility\_type":"","vendor\_company":"Ice Energy","zip":"96001"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Floyd County","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"Jim.messersmith@opc.com","contact\_info\_visible":false,"contact\_name":"Jim Messersmith, Oglethorpe Power Senior Vice President, Plant Operations","contact\_phone":"(770) 270-7210","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Harza","contractor\_2":"Morrison-Knudsen","contractor\_3":"Clement Bros","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-09T17:18:56Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The pumped-storage power plant uses two reservoirs to produce electricity and store energy. The upper reservoir stores water (energy) for periods when electricity demand is high. During these periods, water from the upper reservoir is released down to the power plant to produce hydroelectricity. Water from the power plant is then discharged into the lower reservoir. When energy demand is low, usually at night, water is pumped from the lower reservoir back up to the upper reservoir. The upper reservoir can be replenished in as little as 7.2 hours. The same turbine-generators that are used to generator electricity reverse into pumps during pumping mode.","developer":"Georgia Power","electronics\_provider":"Hitachi, GE","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":300,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/300/rocky-mountain-ph.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/300/thumb\_rocky-mountain-ph.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/300/partner\_rocky-mountain-ph.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":34.2828967,"longitude":-85.2308414,"master\_project\_id":null,"name":"Rocky Mountain Hydroelectric Plant","om\_contractor":"","organization":null,"owner\_1":"Oglethorpe Power","owner\_2":"Georgia Power","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":75.0,"ownership\_percentage\_2":25.0,"performance":"Cycle Efficiency: 78.3%","primary\_reference":"http://www.opc.com/PoweringGeorgia/GeneratingFacilities/HydroelectricPlants/RockyMountainPumped-StorageHydroelectricPlant/index.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1095000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Georgia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:02:24Z","updated\_at\_by\_admin":"2013-05-10T19:09:49Z","updated\_by":null,"updated\_by\_email":null,"utility":"Oglethorpe Power","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"American Hydro Corporation","zip":""}},{"project":{"announcement\_on":"2022-05-09","approval\_status":2,"city":"Encinitas","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"bwilson@ci.encinitas.ca.us","contact\_info\_visible":false,"contact\_name":"Bill Wilson","contact\_phone":"760.633.2846","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Xnergy","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-09T18:06:35Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"As part of a energy retrofit for the City of Encinitas’ Civic Center, designers and engineers considered several eco-minded options that would reduce the center’s energy consumption while lowering costs — and then employed them all. Installing photovoltaic panels on the building’s rooftop was considered and incorporated. So were skylights and light tubes. But perhaps the pièce de résistance is a thermal energy storage solution that keeps the building cool using hardly any electricity during the day. Thermal energy storage works at night by temporarily storing energy — in this case in the form of ice — in large IceBank® storage tanks so the energy can be used during peak energy demand periods. The project is LEED Silver CERTIFIED, recipient of the AEE 2009 Renewable Energy Project of the Year and the system has earned a San Diego Energy Efficiency award. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":301,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"CAISO","latitude":33.044753,"longitude":-117.267231,"master\_project\_id":null,"name":"Encinitas Civic Center","om\_contractor":"","organization":null,"owner\_1":"City of Encinitas","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Energy Savings: 218 kW; 345,634kWh, 999 Therms; Annual Emissions Savings: 312,019 lbs CO2 (GHG); 578 lbs NOx (smog); 650 lbs SO2 (acid rain)","primary\_reference":"http://www.calmac.com/installations/documents/ACoolWayToCutEnergyCosts\_EncinitasCivicCenter\_IAMPOTheOfficial.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":75,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"1140 Oakcrest Park Dr.","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2014-08-14T22:16:25Z","updated\_at\_by\_admin":"2013-07-10T21:27:44Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"CALMAC","zip":"92024"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Honolulu","commissioning\_on":"2022-03-18","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Dean.Geiselman@nordstrom.com; jasmine.williams@calmac.com","contact\_info\_visible":false,"contact\_name":"Dean Geiselman; Jasmine Williams","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-09T18:24:39Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Nordstrom department store is producing 43 tons of ice every night in thermal energy storage tanks on top of its Honolulu department store. The stored ice is then used to cool the store and save energy during the day.\r\n\r\nNordstrom is a better community partner by not pulling electricity off the grid during high peak hours (daytime). Nordstrom approaches resource conservation in a way that focuses on energy efficiency, responsible water use, forest conservation and greenhouse gas reduction.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":302,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/302/Nordy\_Pod3.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/302/thumb\_Nordy\_Pod3.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/302/partner\_Nordy\_Pod3.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":21.2912881,"longitude":-157.8429647,"master\_project\_id":null,"name":"Nordstrom (Ala Moana Center) - Calmac","om\_contractor":"","organization":"","owner\_1":"Nordstrom, Inc.","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"48 energy storage tanks create 43 tons of ice every night.","primary\_reference":"http://the.honoluluadvertiser.com/article/2008/Mar/18/bz/hawaii803180341.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1200,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Hawaii","status":"Operational","street\_address":"1450 Ala Moana Blvd","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-03T05:02:37Z","updated\_at\_by\_admin":"2016-07-28T00:25:25Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Hawaiian Electric Company","utility\_type":"Investor Owned","vendor\_company":"CALMAC","zip":"96814"}},{"project":{"announcement\_on":"2022-05-09","approval\_status":2,"city":"Dallas","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"CALMAC","contact\_phone":"(201) 797-1511","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-09T18:38:00Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The building consists of 176,384 rentable sq ft plus a parking garage of 180,000 sq ft. While utilizing many energy-saving features from lighting to insulation, a key part of the building’s efficiency is attributable to its cooling system. By combining thermal energy storage (14 Ice Bank tanks) with a Trane screw-type water-cooled chiller, the building’s peak electrical load is significantly reduced.\r\n\r\nThe advantage of thermal energy storage is that it shifts electrical usage to inexpensive off-peak hours.\r\n\r\n\* This installation is no longer being utilized regularly, only in 'emergency' situations.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":303,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/303/centex.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/303/thumb\_centex.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/303/partner\_centex.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":32.7801399,"longitude":-96.8004511,"master\_project\_id":null,"name":"CALMAC Centex Building","om\_contractor":"","organization":null,"owner\_1":"Centex Corporation","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Building uses 28.4 kBtu/ft2 yr","primary\_reference":"http://www.achrnews.com/articles/most-energy-efficient-building-uses-thermal-energy-storage","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":205,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Offline/Under Repair","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2014-08-14T22:15:23Z","updated\_at\_by\_admin":"2014-08-07T20:16:29Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"CALMAC","zip":""}},{"project":{"announcement\_on":"2022-05-09","approval\_status":1,"city":"Fort Myers","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-09T18:59:22Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Shell Point Retirement Village utilizes three 1,200-ton centrifugal chillers to provide chilled water during off-peak hours and three 1,200/920-ton ice-making chillers for use during off-peak hours. There is 1,640,806 sqft of conditioned space from both The Island and the new Woodlands facilities. When the central plant loses power, (during a hurricane for instance) there is enough onsite generating capacity to run pumps required to use stored ice for cooling for 24 hr. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":304,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":26.5156681,"longitude":-81.9957138,"master\_project\_id":null,"name":"Shell Point Retirement Village","om\_contractor":"","organization":"N/A","owner\_1":"Shell Point Retirement Village","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Based on an average $8.30-per-kilowatt demand charge and a 6.5-to-8.5-cents-per kilowatt-hour on-peak charge vs. a 2.5-to-4-cents-per-kilowatt-hour off-peak charge, annual savings are $468,000.","primary\_reference":"http://www.calmac.com/stuff/contentmgr/files/0/9e42be7ce800b33ed5d169183104947a/files/shellpointcasestudy.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":4800,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Florida","status":"Operational","street\_address":"15071 Shell Point Blvd","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-11-27T02:59:39Z","updated\_at\_by\_admin":"2013-07-10T21:28:35Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Florida Power & Light","utility\_type":"Investor Owned","vendor\_company":"CALMAC","zip":"33908"}},{"project":{"announcement\_on":"2022-05-09","approval\_status":1,"city":"Brooks","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"guy.frankenfield@dntanks.com","contact\_info\_visible":false,"contact\_name":"Guy Frankenfield Manager, TES & Biofuels ","contact\_phone":"972.823.3300 ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Trane","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-09T19:22:21Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Trane-Northern CA team developed an energy savings project for the Cache Creek Casino Resort in Brooks, CA. Trane selected Natgun to build an energy cost savings 1,370,000 gallon concrete Thermal Energy Storage (TES) tank that Trane would integrate into the existing chilled water district cooling system at the resort. This TES system would allow the resort engineers to shift 900 KW of electric load from the peak electric period to the off-peak period. In addition, this TES system would reduce the energy\r\nconsumption associated with the daily chilled water generation at the complex.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":305,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/305/pt\_cachecreek.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/305/thumb\_pt\_cachecreek.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/305/partner\_pt\_cachecreek.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":38.7342564,"longitude":-122.1429357,"master\_project\_id":null,"name":"Cache Creek Casino","om\_contractor":"","organization":"","owner\_1":"Cache Creek Casino Resort","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.dntanks.com/projects/cache-creek-casino-tes-tank/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1300,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"14455 California 16","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-01T01:56:10Z","updated\_at\_by\_admin":"2016-12-08T17:49:46Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"DN Tanks","zip":"95606"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Dallas","commissioning\_on":"2022-02-06","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Coolsolutionsco@aol.com","contact\_info\_visible":false,"contact\_name":"John Andrepont","contact\_phone":"630-353-9690","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-09T22:04:34Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In 1996, the U.S. Department of Veterans Affairs North Texas Health Care System contracted DN Tanks to construct a 3.3 MG Thermal Energy Storage (TES) tank for the purpose of saving energy costs by taking advantage of the time-of-use electric rates. The TES system was designed to shift the electric load of the chillers and associated cooling equipment from the on-peak periods (daytime), to the off-peak periods (night time). Carter-Burgess provided the design of the TES System that included TES system that included a stratified chilled water storage tank with a thermal energy storage capacity of 24,600 ton-hrs of cooling. The TES tank was integrated into the district chilled water system that provides cooling for this 84 acre health care campus with over 2.5 million square feet of conditioned space.\r\n\r\nThe TES tank at the VA Hospital in Dallas, TX has been operating continuously for the past ten years providing energy cost savings, additional cooling capacity to handle the needs of an expanding campus, and “cooling insurance” by providing chilled water during periods of planned and unplanned downtime of the central plant equipment.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":306,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/306/pt\_vahospital.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/306/thumb\_pt\_vahospital.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/306/partner\_pt\_vahospital.jpg"}},"integrator\_company":"TU Electric","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":32.694882,"longitude":-96.789985,"master\_project\_id":null,"name":"VA Medical Center","om\_contractor":"","organization":"","owner\_1":"The Dallas, Texas Veterans Administration","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"In the summer of 1997 thermal storage reduced peak demand by 2,934 kW, cutting annual electricity costs by $223,650.","primary\_reference":"https://www.dntanks.com/projects/va-medical-center/","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":2300,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"4500 South Lancaster Road","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-11-29T20:23:31Z","updated\_at\_by\_admin":"2013-06-23T22:29:14Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Energy Future Holdings","utility\_type":"Investor Owned","vendor\_company":"DN Tanks","zip":"75216"}},{"project":{"announcement\_on":"2022-05-09","approval\_status":1,"city":"San Antonio","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"guy.frankenfield@dntanks.com","contact\_info\_visible":false,"contact\_name":"Guy Frankenfield","contact\_phone":"972-823-3300","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Siemens Building Technologies","contractor\_2":"Natgun","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-09T22:22:42Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Siemens Building Technologies, a leading Energy Services Company (ESCO), selected Natgun to build a 792,000 gallon Thermal Energy Storage tank rated at 6600 ton-hours of TES at Lackland AFB near San Antonio, TX. Through a design-build performance contract, Siemens Building Technologies provided the base with several utility savings and infrastructure improvements that included adding a TES tank to one of the closed loop chilled water distribution systems at the base. The TES tank provides the energy management staff at Lackland AFB the flexibility to operate their chilled water cooling system more efficiently by allowing the chillers to operate during night-time and off-peak hours instead of during the afternoon, the hottest part of day.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":307,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":29.38263,"longitude":-98.6133217,"master\_project\_id":null,"name":"Lackland Air Force Base","om\_contractor":"","organization":"DN Tanks","owner\_1":"US Air Force","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.dntanks.com/projects/lackland-afb-tes-tank/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":580,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"1030 Reese","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-24T16:34:34Z","updated\_at\_by\_admin":"2013-06-23T22:32:46Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"DN Tanks","zip":"78299"}},{"project":{"announcement\_on":"2022-05-09","approval\_status":1,"city":"Danville","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"guy.frankenfield@dntanks.com","contact\_info\_visible":false,"contact\_name":"Guy Frankenfield","contact\_phone":"972-823-3300","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-09T23:08:43Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"As a part of a major expansion at their hospital campus in Danville, PA, Geisinger Health System built a new central chilled water plant to serve the district cooling requirements for their campus. The tank, which came online in 2009, is rated at 8000 ton-hrs of TES.\r\n\r\nThis TES tank provides the facilities management staff at Geisinger with the ability to operate their district cooling system more efficiently by allowing the chillers to operate during night-time and off-peak hours instead of during the peak electric period during the daytime.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":308,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Ewing-Cole","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.9678905,"longitude":-76.6050616,"master\_project\_id":null,"name":"Geisinger Health System Danville Chilled Water Thermal Storage","om\_contractor":"","organization":"DN Tanks","owner\_1":"Geisinger Health System","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Estimated Annual Savings: $85,000","primary\_reference":"https://www.dntanks.com/projects/geisinger-health-system-tes-tank/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":700,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Pennsylvania","status":"Operational","street\_address":"100 North Academy Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-23T17:02:06Z","updated\_at\_by\_admin":"2013-06-23T22:38:07Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"DN Tanks","zip":"17822"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Edinburg","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"guy.frankenfield@dntanks.com","contact\_info\_visible":false,"contact\_name":"Guy Frankenfield","contact\_phone":"972-823-3300","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-09T23:20:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In 2002, the University of Texas – Pan American contracted Natgun Corporation to construct a 1.07 MG, 10,000 ton-hr thermal energy storage tank (TES) for the purpose of saving energy costs, and to provide back-up cooling in the event of unplanned downtime of their chillers. The TES system was designed to shift the electric load of the chillers from on-peak periods (daytime) to off-peak periods (night time).","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":309,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":26.3052059,"longitude":-98.175972,"master\_project\_id":null,"name":"University of Texas Pan-Am Thermal Energy Storage","om\_contractor":"","organization":"DN Tanks","owner\_1":"University of Texas Pan-Am","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"https://www.dntanks.com/projects/ut-pan-am-tes-tank/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":875,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"1201 W University Dr.","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-22T03:49:23Z","updated\_at\_by\_admin":"2013-06-23T22:37:46Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"DN Tanks","zip":"78539"}},{"project":{"announcement\_on":"2022-05-09","approval\_status":1,"city":"Dallas","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Coolsolutionsco@aol.com","contact\_info\_visible":false,"contact\_name":"John Andrepont","contact\_phone":"630-353-9690","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-09T23:33:31Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In 1989, (a large semi-conductor chip manufacturer) contracted Natgun Corporation to construct a partially buried 2.7 MG, 24,500 ton-hr thermal energy storage (TES) tank for the purpose of saving energy costs by taking advantage of the time-of-use electric rates. The TES system was designed to shift the electric load of the chillers and associated cooling equipment from the on-peak periods (daytime), to the off-peak periods (night time). Then in 1993, (this same large semi-conductor chip manufacturer) contracted Natgun to construct a second TES tank. This second tank was much larger (5.2 MG and rated at 48,730 ton-hrs) and was constructed fully buried beneath a parking lot.\r\n\r\nThe TES Tanks serving the facilities of this large semi-conductor manufacturer in Dallas, TX area have been in operation for decades providing numerous benefits to the owner including: energy cost savings, plants and reliability in the form of spare cooling capacity for the chilled water system during periods of planned and unplanned downtime of the central plant equipment. ","developer":"Texas Instruments","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":310,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/310/DN\_Tanks\_-\_Texas\_Instruments.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/310/thumb\_DN\_Tanks\_-\_Texas\_Instruments.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/310/partner\_DN\_Tanks\_-\_Texas\_Instruments.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":32.7801399,"longitude":-96.8004511,"master\_project\_id":null,"name":"Texas Instruments Manufacturing Plant","om\_contractor":"","organization":"","owner\_1":"Texas Instruments","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.dntanks.com/project-profiles.htm","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":6400,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-28T00:31:15Z","updated\_at\_by\_admin":"2015-08-24T17:59:38Z","updated\_by":null,"updated\_by\_email":null,"utility":"Energy Future Holdings","utility\_type":"Investor Owned","vendor\_company":"DN Tanks","zip":""}},{"project":{"announcement\_on":"2022-05-09","approval\_status":1,"city":"Quantico","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"guy.frankenfield@dntanks.com","contact\_info\_visible":false,"contact\_name":"Guy Frankenfield","contact\_phone":"972-823-3300","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-09T23:46:23Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In 2007, a 0.11 MG TES tank was added to an existing closed-loop, chilled water cooling system that serves several multi-story buildings at this campus. The TES tank gives the Federal Government facility the flexibility to operate their chilled water cooling system more cost effectively.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":311,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Noresco","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":38.52245,"longitude":-77.289687,"master\_project\_id":null,"name":"Federal Government Facility Chilled Water TES","om\_contractor":"","organization":"DN Tanks","owner\_1":"US Federal Government","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.dntanks.com/wp-content/uploads/2013/01/Quantico\_VA\_ProjectProfile.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":274,"size\_kwh":2.5,"size\_kwh\_hours":2,"size\_kwh\_minutes":30.0,"state":"Virginia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-01-12T05:09:58Z","updated\_at\_by\_admin":"2013-06-23T22:45:59Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"DN Tanks","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Chantilly","commissioning\_on":"2022-08-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Coolsolutionsco@aol.com","contact\_info\_visible":false,"contact\_name":"John Andrepont","contact\_phone":"630-353-9690","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Dunlap & Partners","contractor\_2":"Poole & Kent","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-10T00:01:44Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In 2006, a large Internet Service Provider (ISP) located in Dulles, VA selected DN Tanks to build a mission critical Thermal Energy Storage (TES) tank to service their data center. The data center which operates 24 hours each day could not afford the consequences that would result if their chilled water cooling system were to experience downtime. This TES tank, now our third built TES tank for this same ISP, was designed to provide back-up cooling for the central plant in the event that the chillers experience unexpected downtime.\r\n\r\nThe tank was specified to be capable of storing enough chilled water equal to the peak cooling load for the facility for a period of two hours.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":312,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/312/dulles-thumb.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/312/thumb\_dulles-thumb.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/312/partner\_dulles-thumb.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":38.8942786,"longitude":-77.4310992,"master\_project\_id":null,"name":"TES Tank for Internet Service Provider Dulles, VA","om\_contractor":"","organization":"","owner\_1":"American Online","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"https://www.dntanks.com/projects/tes-tank-for-internet-service-provider-in-dulles-va/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1500,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Virginia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-11-30T23:48:59Z","updated\_at\_by\_admin":"2016-07-26T19:26:57Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"DN Tanks","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"San Antonio","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"guy.frankenfield@dntanks.com","contact\_info\_visible":false,"contact\_name":"Guy Frankenfield","contact\_phone":"972-823-3300","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-20T20:55:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In 1982, the San Antonio Airport contracted Natgun Corporation to construct a 0.5 MG thermal energy storage (TES) tank for the purpose of saving energy costs, and also to defer the capital expenditures associated with adding additional chiller plant equipment. The tank was originally designed for a maximum of 4,500 ton-hours of useable thermal energy storage capacity. The exterior of the tank is insulated to prevent heat loss.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":314,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/314/Capture.PNG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/314/thumb\_Capture.PNG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/314/partner\_Capture.PNG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":29.5280155,"longitude":-98.4754012,"master\_project\_id":null,"name":"Thermal Storage at San Antonio International Airport","om\_contractor":"","organization":"DN Tanks","owner\_1":"San Antonio International Airport","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.dntanks.com/projects/thermal-energy-storage-at-the-san-antonio-airport/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":422,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"9800 Airport Blvd","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-01-05T01:15:49Z","updated\_at\_by\_admin":"2014-07-12T00:56:07Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"DN Tanks","zip":"78216"}},{"project":{"announcement\_on":"2022-05-01","approval\_status":1,"city":"Tehachapi","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"keith.longtin@ge.com","contact\_info\_visible":false,"contact\_name":"Keith Longtin","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-20T23:40:47Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Invenergy installed GE’s Brilliant Wind Turbine with Durathon Batteries at a Mills County, Texas wind farm. The turbines leverage short-term energy storage provided by the GE Durathon Battery to help ensure reliable, predictable power.","developer":"Invenergy","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":315,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":31.6137467,"longitude":-98.5721016,"master\_project\_id":null,"name":"GE Tehachapi Wind Durathon Battery Project - Invenergy","om\_contractor":"","organization":"General Electric","owner\_1":"General Electric","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.businesswire.com/news/home/20130501005783/en/Invenergy-Install-GE%E2%80%99s-Brilliant-Wind-Turbine-Integrated","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":300,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-08T05:16:18Z","updated\_at\_by\_admin":"2015-12-23T19:17:25Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"GE Energy Storage","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Kula","commissioning\_on":"2021-12-20","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"JAllyn@SempraUSGP.com ","contact\_info\_visible":false,"contact\_name":"Jennifer Allyn ","contact\_phone":"619.696.2795","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-21T00:46:20Z","created\_by\_id":85,"debt\_investor":"","decommissioning\_on":null,"desc":"An important component of this wind project is the 11-MW grid battery system. Energy from the battery system helps to regulate and sustain power to Maui Electric Company’s grid during variable wind conditions. The battery storage component of this project includes state-of-the-art monitoring and safety controls that ensure reliable operation for the life of the project. The wind power from Auwahi Wind has been sold to Maui Electric Company under a 20-year contract.","developer":"","electronics\_provider":"Dynapower","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":317,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/317/Sempra\_Auwahi.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/317/thumb\_Sempra\_Auwahi.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/317/partner\_Sempra\_Auwahi.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":20.7909697,"longitude":-156.3269338,"master\_project\_id":null,"name":"Auwahi Wind Farm ","om\_contractor":"","organization":"","owner\_1":"Sempra","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.a123systems.com/smart-grid-storage.htm","primary\_reference1":"http://www.semprarenewables.com/wp-content/uploads/2017/09/auwahi-2017\_06\_01.pdf","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Ramping ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":11000,"size\_kwh":2.5,"size\_kwh\_hours":2,"size\_kwh\_minutes":30.0,"state":"Hawaii","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-26T23:54:07Z","updated\_at\_by\_admin":"2014-07-16T20:23:06Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"A123 (NEC Energy Solutions, Inc.)","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Seminole","commissioning\_on":"2021-12-19","companion":"","construction\_on":"2022-01-01","contact\_city":"Boston","contact\_country":"United States","contact\_email":"prood@generalcompresison.com","contact\_info\_visible":true,"contact\_name":"Peter K Rood","contact\_phone":"","contact\_state":"MA","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-21T17:31:49Z","created\_by\_id":104,"debt\_investor":"","decommissioning\_on":null,"desc":"General Compression merged with SustainX in 2015.\r\n\r\nThe Gaines, Texas Dispatchable Wind Project is a 2.0MW wind generation project located in West Texas. It is owned and operated by Texas Dispatachable Wind 1, LLC, a subsidiary of General Compression. The project consists of a wind turbine, a General Compression Advanced Energy Storage (GCAES™) system, a storage cavern, and other electrical & ancillary facilities. The project has the capability to, during periods of low demand, store portions of the energy generated by the wind turbine and later, during periods of increased demand, release the stored energy. Construction of the project began in 2011 and the project was commissioned in late 2012.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":318,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/318/2012-10-18\_18-51-23.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/318/thumb\_2012-10-18\_18-51-23.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/318/partner\_2012-10-18\_18-51-23.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"SPP","latitude":32.7189926,"longitude":-102.6449101,"master\_project\_id":null,"name":"Texas Dispatchable Wind","om\_contractor":"","organization":"","owner\_1":"General Compression, Inc.","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.tceq.texas.gov/assets/public/implementation/air/terp/ntig/prog\_rpts/GC\_Task1.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":2000,"size\_kwh":250.0,"size\_kwh\_hours":250,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"In-ground Iso-thermal Compressed Air","technology\_type\_l1":"In-ground Compressed Air Storage","technology\_type\_l2":"Compressed Air Storage","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-11-30T20:56:20Z","updated\_at\_by\_admin":"2016-05-18T21:34:48Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"General Compression, Inc.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Joplin","commissioning\_on":"2022-06-01","companion":"10KW Wind and 20 KW Solar attached","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"","contact\_email":"callie.hudson@eaglepicher.com","contact\_info\_visible":false,"contact\_name":"Callie Hudson","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1400000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-21T22:04:13Z","created\_by\_id":5,"debt\_investor":"","decommissioning\_on":null,"desc":"Demonstration system for industrial peak-shaving and grid-energy storage.\r\n\r\nTiered Hybrid ESS System:\r\nTier 1: Li-Ion\r\n100kW, 172kWh\r\nTier 2: Tubular lead-acid\r\n200kW, 240kWh\r\nTier 3: AGM lead-acid\r\n700kW, 1512kWh","developer":"","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":319,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/319/Capture.PNG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/319/thumb\_Capture.PNG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/319/partner\_Capture.PNG"}},"integrator\_company":"EaglePicher Technologies","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"SPP","latitude":37.0944308,"longitude":-94.5279523,"master\_project\_id":null,"name":"EaglePicher HQ PowerPyramid","om\_contractor":"","organization":"EaglePicher Technologies","owner\_1":"EaglePicher Technologies","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.princetonpower.com/pdfs/eaglepicher\_cs.pdf","primary\_reference1":"http://energystorage.org/energy-storage/case-studies/peak-shaving-reduce-energy-costs-eaglepicher-power-pyramid%E2%84%A2-hybrid","projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"On-Site Power","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Missouri","status":"Operational","street\_address":"C & Porter Streets","systems\_integration":"","technology\_classification":"","technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-16T06:30:06Z","updated\_at\_by\_admin":"2016-05-16T23:26:28Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Empire District Electric Company","utility\_type":"Public Owned","vendor\_company":"EaglePicher Technologies","zip":"64804"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Irvine","commissioning\_on":"2022-07-31","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Ardalan.kamiab@sce.com","contact\_info\_visible":false,"contact\_name":"Ardalan \"Ed\" Kamiab","contact\_phone":"(714) 379-7915","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"S&C Electric Company","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-21T23:12:47Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Southern California Edison (SCE) and its partners will deploy advanced Smart Grid (SG) technologies in an integrated system to be more reliable, secure, economic, efficient, safe, and environmentally friendly. The technology demonstrations will include three main areas: (1) Energy Smart Customer Devices such as smart appliances, home scale energy storage, and photovoltaic solar systems to achieve Zero Net Energy homes and Zero Grid Impact electric vehicle charging at work; (2) Year 2020 Distribution System including distribution automation with looped circuit topology, advanced voltage/VAR control, advanced distribution equipment, smart metering, utility-scale storage, and dispatched renewable distributed generation; and (3) a Secure Energy Network to demonstrate end-to-end management of a complex high performance telecommunication system linking the CAISO to SCE’s back office, field networks, and energy smart devices in the home. Other specific aspects of sub-projects include: distribution circuit constraint management, enhanced circuit efficiency and power quality, self-healing circuits, deep grid situational awareness, and end-to-end cyber security and interoperability. The demonstration will be conducted in Irvine, California and will include two 12kV distribution circuits fed by SCE’s MacArthur Substation, residential homes, and EV charging in a parking lot at the University of California, Irvine.\r\n\r\nA Community Energy Storage (CES) system manufactured by the S&C Electric Company was installed as part of the ISGD Project and fully commissioned by July 31, 2013. The CES includes a 25 kW power conversion system and a total of 50 kWh of Kokam lithium-ion batteries. The CES is controlled remotely using utility communication protocols to a Distributed Energy Manager server. It includes autonomous modes which allow it to actively adjust its real and/or reactive power to affect the local loading of the circuit. The CES is connected to a residential service transformer serving a block of customers, and is also capable of islanding the block of homes by disconnecting from the grid in the event of an outage. ","developer":"S&C Electric Company","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":320,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/320/anatolia\_ces.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/320/thumb\_anatolia\_ces.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/320/partner\_anatolia\_ces.jpg"}},"integrator\_company":"S&C Electric Company","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":33.6387024,"longitude":-117.8370041,"master\_project\_id":"278:321:322","name":"SCE Irvine Smart Grid Demonstration: CES","om\_contractor":"","organization":null,"owner\_1":"Southern California Edison","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.smartgrid.gov/project/southern\_california\_edison\_company\_irvine\_smart\_grid\_demonstration","primary\_reference1":null,"projected\_lifetime":"2.0","rdd\_status":"No","research\_desc":"","research\_institution":"UC Irvine, Electric Power Research Institute (EPRI)","research\_institution\_link":"http://www.apep.uci.edu/3/AboutTheCenter/default.aspx, http://www.epri.com/Pages/Default.aspx","service\_use\_case\_1":"Load Following (Tertiary Balancing)","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Grid-Connected Residential (Reliability)","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":25,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-07-31T22:33:54Z","updated\_at\_by\_admin":"2014-07-31T22:33:54Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Kokam","zip":"92617"}},{"project":{"announcement\_on":"2022-05-21","approval\_status":1,"city":"Irvine","commissioning\_on":null,"companion":"Parking Structure PV Array","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Ardalan.kamiab@sce.com","contact\_info\_visible":false,"contact\_name":"Ardalan \"Ed\" Kamiab","contact\_phone":"(714) 379-7916","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-21T23:17:09Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Southern California Edison (SCE) and its partners will deploy advanced Smart Grid SG) technologies in an integrated system to be more reliable, secure, economic, efficient, safe, and environmentally friendly. The technology demonstrations will include three main areas: (1) Energy Smart Customer Devices such as smart appliances, home scale energy storage, and photovoltaic (PV) solar systems to achieve Zero Net Energy homes and Zero Grid Impact electric vehicle (EV) charging at work; (2) Year 2020 Distribution System including distribution automation with looped circuit topology, advanced voltage/VAR control, advanced distribution equipment, smart metering, utility-scale storage, and dispatched renewable distributed generation; and (3) a Secure Energy Network to demonstrate end-to-end management of a complex high performance telecommunication system linking the CAISO to SCE’s back office, field networks, and energy smart devices in the home. Other specific aspects of sub-projects include: distribution circuit constraint management, enhanced circuit efficiency and power quality, self-healing circuits, deep grid situational awareness, and end-to-end cyber security and interoperability. The demonstration will be conducted in Irvine, California and will include two 12kV distribution circuits fed by SCE’s MacArthur Substation, residential homes, and EV charging in a parking lot at the University of California, Irvine. \r\n","developer":"","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":321,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":33.6839473,"longitude":-117.7946942,"master\_project\_id":null,"name":"SCE Irvine Smart Grid Demonstration: Solar Car Charging Station","om\_contractor":"","organization":"Southern California Edison","owner\_1":"Southern California Edison","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.smartgrid.gov/project/southern\_california\_edison\_company\_irvine\_smart\_grid\_demonstration","primary\_reference1":"https://www.smartgrid.gov/project/southern\_california\_edison\_company\_irvine\_smart\_grid\_demonstration.html","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"UC Irvine, Electric Power Research Institute (EPRI)","research\_institution\_link":"http://www.apep.uci.edu/3/AboutTheCenter/default.aspx, http://www.epri.com/Pages/Default.aspx","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-18T00:24:48Z","updated\_at\_by\_admin":"2014-08-12T21:18:51Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Irvine","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Ardalan.kamiab@sce.com","contact\_info\_visible":false,"contact\_name":"Ardalan \"Ed\" Kamiab","contact\_phone":"(714) 379-7917","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"A123 Systems","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-21T23:23:03Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Southern California Edison (SCE) and its partners will deploy advanced Smart Grid SG) technologies in an integrated system to be more reliable, secure, economic, efficient, safe, and environmentally friendly. The technology demonstrations will include three main areas: (1) Energy Smart Customer Devices such as smart appliances, home scale energy storage, and photovoltaic (PV) solar systems to achieve Zero Net Energy homes and Zero Grid Impact electric vehicle (EV) charging at work; (2) Year 2020 Distribution System including distribution automation with looped circuit topology, advanced voltage/VAR control, advanced distribution equipment, smart metering, utility-scale storage, and dispatched renewable distributed generation; and (3) a Secure Energy Network to demonstrate end-to-end management of a complex high performance telecommunication system linking the CAISO to SCE’s back office, field networks, and energy smart devices in the home. Other specific aspects of sub-projects include: distribution circuit constraint management, enhanced circuit efficiency and power quality, self-healing circuits, deep grid situational awareness, and end-to-end cyber security and interoperability. The demonstration will be conducted in Irvine, California and will include two 12kV distribution circuits fed by SCE’s MacArthur Substation, residential homes, and EV charging in a parking lot at the University of California, Irvine. \r\n\r\nAnother part of the ISGD is the A123 System large distributed energy storage unit. The 2 MW, 0.5 MWh containerized lithium-ion energy storage unit will allow SCE to explore protection and control strategies on a distribution system with significant reverse power flow capability. Two distribution circuits capable of being operated either radially or as a single loop will help SCE engineers evaluate different strategies of circuit constraint ","developer":"A123 Systems","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":322,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":33.6588951,"longitude":-117.8282121,"master\_project\_id":null,"name":"SCE Irvine Smart Grid Demonstration: Containerized Distributed Storage Unit","om\_contractor":"","organization":"","owner\_1":"Southern California Edison","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.smartgrid.gov/project/southern\_california\_edison\_company\_irvine\_smart\_grid\_demonstration","primary\_reference1":"https://www.smartgrid.gov/files/OE0000199\_SCE\_Irvine\_FactSheet.pdf","projected\_lifetime":"0.5","rdd\_status":"No","research\_desc":"","research\_institution":"UC Irvine, Electric Power Research Institute (EPRI)","research\_institution\_link":"http://www.apep.uci.edu/3/AboutTheCenter/default.aspx, http://www.epri.com/Pages/Default.aspx","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T20:47:45Z","updated\_at\_by\_admin":"2015-03-16T19:01:00Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"A123 Systems","zip":"92612"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Pasadena","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"Turbine Air Systems","contact\_phone":"713.877.8700","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-22T00:41:30Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Independent Power Producers are looking for solutions that can make up for the decrease in power output when ambient temperatures increase – allowing them to sell more electric energy when demand increases.\r\n\r\nWith the evaluation of various solutions, TAS Energy’s Generation Storage™ was utilized for the retrofit that included installation of a hybrid refrigeration system including a combination of absorption chillers, an electric chiller and a Thermal Energy Storage (TES) tank, custom built filter houses with cooling coils and a heat recovery coil retrofit.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":323,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":29.626104,"longitude":-95.067727,"master\_project\_id":null,"name":"TAS Thermal Storage with Combined-Cycle Cogeneration Plant","om\_contractor":"","organization":null,"owner\_1":"Calpine Clear Lake Cogeneration, Inc.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The TIC application added over 51 net MW to the facility’s output on the hot day (95°F dry-bulb/80°F wet-bulb temperature) while improving the “on-peak” heat rate by approximately 3.5 percent.","primary\_reference":"http://www.storagealliance.org/sites/default/files/whystorage/Calpine-Clear-Lake-Project-Profile-2-2-2012.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":5100,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"9602 Bayport Blvd","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2014-08-14T22:07:13Z","updated\_at\_by\_admin":"2014-07-21T21:47:16Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"TAS Energy","zip":""}},{"project":{"announcement\_on":"2022-08-13","approval\_status":1,"city":"Worcester","commissioning\_on":"2022-02-01","companion":"Wind Turbine","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"","contact\_email":"Kimberly.Nuhfer@netl.doe.gov; dalderton@vionxenergy.com","contact\_info\_visible":false,"contact\_name":"Kimberly Nuhfer; Douglas Alderton","contact\_phone":"304-285-6544; 603-391-2817","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-23T20:22:31Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This project demonstrates competitively-priced, grid scale, long-duration advanced flow batteries for utility grid applications. The project incorporates engineering of fleet control, manufacturing and installation of two 500kW/6-hour energy storage systems in Massachusetts to lower peak energy demand and reduce the costs of power interruptions. \r\n\r\nOne ESS will be installed next to a 605 kW photovoltaic (PV) array in Everett, MA. A second ESS will be installed next to a 600 kW wind turbine located on a customer site in Worcester, MA.","developer":"National Grid","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":6062552.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":324,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.2625932,"longitude":-71.8022934,"master\_project\_id":null,"name":"Distributed Energy Storage Systems Demonstration (Worcester, MA) - National Grid ","om\_contractor":"National Grid","organization":"National Energy Technology Laboratory; Vionx Energy (formerly Premium Power)","owner\_1":"National Grid","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"https://www.smartgrid.gov/document/premium\_power\_distributed\_energy\_storage\_system.html","primary\_reference1":"https://www.businesswire.com/news/home/20171005006381/en/Vionx-National-Grid-Department-Energy-Complete-Installation","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-31T19:11:13Z","updated\_at\_by\_admin":"2016-05-19T22:18:33Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"National Grid","utility\_type":"Investor Owned","vendor\_company":"Vionx Energy (formerly Premium Power)","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Charlotte","commissioning\_on":"2022-11-05","companion":"50 kW Solar Farm","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Zachary.Kuznar@duke-energy.com","contact\_info\_visible":true,"contact\_name":"Zachary Kuznar","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-24T16:35:44Z","created\_by\_id":105,"debt\_investor":"","decommissioning\_on":null,"desc":"200 kW / 500 kWh BYD LiFePO4 system used for both energy shifting and renewable smoothing of an adjacent 50 kW solar farm.","developer":"Utility Partners of America (UPA)","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":325,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/325/BYD\_Finished\_Project.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/325/thumb\_BYD\_Finished\_Project.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/325/partner\_BYD\_Finished\_Project.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.0535496,"longitude":-80.8211696,"master\_project\_id":null,"name":"McAlpine Energy Storage System - Utility Partners of America (UPA)","om\_contractor":"","organization":"Duke Energy","owner\_1":"Duke Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.businesswire.com/news/home/20121105006882/en/UPA-Installs-500KWh-Environmentally-Friendly-Containerized-Battery-BYD#.U6Gxi\_ldWSp","primary\_reference1":"https://www.nrel.gov/grid/assets/pdfs/second\_grid\_sim\_fenimore.pdf","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"Renewables Energy Time Shift","service\_use\_case\_7":"Voltage Support","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":200,"size\_kwh":2.5,"size\_kwh\_hours":2,"size\_kwh\_minutes":30.0,"state":"North Carolina","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-04T03:31:42Z","updated\_at\_by\_admin":"2016-05-19T21:08:05Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Duke Energy","utility\_type":"Investor Owned","vendor\_company":"BYD","zip":"28277"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Carmel ","commissioning\_on":"2022-01-30","companion":"Customer side of the meter installations (solar + electric vehicle charging + microEMS)","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"zachary.kuznar@duke-energy.com","contact\_info\_visible":true,"contact\_name":"Zachary Kuznar","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-24T16:43:44Z","created\_by\_id":105,"debt\_investor":"","decommissioning\_on":null,"desc":"75 kW / 42 kWh Toshiba battery co-located with 9.8 kW of solar generation along with 2 L2 electric vehicle chargers and one DC EVSE which is optimized by utilizing Toshiba's microEMS system.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":326,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/326/Clay\_Terrace\_photo.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/326/thumb\_Clay\_Terrace\_photo.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/326/partner\_Clay\_Terrace\_photo.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"MISO","latitude":39.978371,"longitude":-86.1180435,"master\_project\_id":null,"name":"Clay Terrace Plug-In Ecosystem","om\_contractor":"","organization":null,"owner\_1":"Duke Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://duke-energy.com","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity 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Farm","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"schererb@bentonpud.org","contact\_info\_visible":false,"contact\_name":"Blake Scherer, Supervisor of System Engineering","contact\_phone":"(509) 582-2175","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-28T23:27:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-10-01","desc":"Benton PUD wished to demonstrate that energy storage could charge when the nearby Nine Canyon Wind farm was producing wind energy, and then discharge this energy during the Public Utility District's peak demand periods. Wind energy would then be better used and the utility’s demand curve would also be flatter.\r\n\r\nThis project is part of the Pacific Northwest Smart Grid Demonstration Project funded by the Department of Energy.","developer":"Battelle Memorial Institute","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":327,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/327/bentonpud.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/327/thumb\_bentonpud.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/327/partner\_bentonpud.jpg"}},"integrator\_company":"Resource Associates International","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.2112458,"longitude":-119.1372338,"master\_project\_id":null,"name":"Benton PUD Battery Energy Storage","om\_contractor":"","organization":"","owner\_1":"Public Utility District No. 1 of Benton County","owner\_2":"Department of Energy","owner\_type":"3","ownership\_model":"Utility-Owned","ownership\_percentage\_1":50.0,"ownership\_percentage\_2":50.0,"performance":"","primary\_reference":"http://www.tri-cityherald.com/news/local/article32075406.html","primary\_reference1":"https://www.smartgrid.gov/files/TPR08BentonPUDTests.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"Battelle is the world’s largest nonprofit research and development organization, with over 22,000 employees at more than 130 locations globally. A 501(c)(3) charitable trust, Battelle was founded on industrialist Gordon Battelle’s vision that business and scientific interests can go hand-in-hand as forces for positive change.","research\_institution":"Battelle Memorial Institute","research\_institution\_link":"http://www.battelle.org/","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":10,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Washington","status":"Offline/Under Repair","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Valve Regulated Lead-acid Battery","technology\_type\_l1":"Valve Regulated Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-23T19:38:34Z","updated\_at\_by\_admin":"2017-10-23T19:38:34Z","updated\_by":null,"updated\_by\_email":null,"utility":"Public Utility District No. 1 of Benton County","utility\_type":"Public Owned","vendor\_company":"Demand Energy Networks","zip":"99337"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Sacramento","commissioning\_on":"2022-10-16","companion":"Residential solar panels","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"rachel.radell@smud.org","contact\_info\_visible":false,"contact\_name":"Rachel Radell","contact\_phone":"916-732-6248","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Sacramento Municipal Utility District","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-29T01:11:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Every 2500 R home comes with its own Sunverge Solar Integration System (SIS). Integrated with solar PV and demand response Programmable Communicating Thermostats, SIS units will provide energy services to each home with additional energy reserves aggregated and delivered to SMUD as Demand Response capacity. \r\n\r\nThis project will provide a benchmark for how energy storage, solar, and smart devices can be controlled and aggregated in order to provide multiple grid management benefits. In addition, it will demonstrate how these systems can be simultaneously used on the customer side of the meter to manage demand, lower electricity costs, and provide backup power in the case of a grid outage.\r\n\r\nIn total, there are 34 residential energy storage systems in the housing development rated at 4.5 kW/ 11.64 kWh each.","developer":"Pacific Housing","electronics\_provider":"Sunverge","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Grant","funding\_source\_2":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_3":"","funding\_source\_details\_1":"Sacramento Municipal Utility District - SolarSmart Homes Program","funding\_source\_details\_2":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":328,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Sunverge","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"BANC","latitude":38.5660192,"longitude":-121.4770676,"master\_project\_id":null,"name":"SMUD 2500 R St. Housing Development - Pacific Housing","om\_contractor":"","organization":"Sacramento Municipal Utilities District","owner\_1":"Sacramento Municipal Utility District","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics under development.","primary\_reference":"https://www.cleanegroup.org/ceg-projects/resilient-power-project/featured-installations/2500-r-street/","primary\_reference1":"https://www.smud.org/-/media/About-Us/Research-and-Development/Energy-Research-and-Development/research-2500-R-Street-entegrated-energy-evaluation.ashx?la=en&hash=9B2A04EE5A5A31CD03E26C7F65151778AA3699D7","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"Grid-Connected Residential (Reliability)","service\_use\_case\_5":"Onsite Renewable Generation Shifting","service\_use\_case\_6":"Renewables Capacity Firming","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":153,"size\_kwh":2.58333333333333,"size\_kwh\_hours":2,"size\_kwh\_minutes":35.0,"state":"California","status":"Operational","street\_address":"2500 R St.","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-06T07:19:53Z","updated\_at\_by\_admin":"2015-12-24T01:33:00Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Sacramento Municipal Utility District","utility\_type":"Public Owned","vendor\_company":"Sunverge","zip":"95816"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Talbingo","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"Talbingo","contact\_country":"Australia","contact\_email":"enquiry@snowyhydro.com.au","contact\_info\_visible":false,"contact\_name":"Snowy Hydro Limited, Lower Tumut Office","contact\_phone":"61 +2 6949 4588","contact\_state":"New South Wales","contact\_street\_address":"PO Box 42","contact\_zip":"2720","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2013-05-29T16:36:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Tumut 3 Power Station is the first pumped storage hydroelectric power station in Australia. Pump-storage schemes use off-peak energy to pump water to a reservoir on a higher level. This water then passes through turbines to generate electricity when prices are higher. The sole powerhouse is located above ground, approximately 1,800 metres (5,900 ft) below Talbingo Dam. \r\n\r\nThe power station is fitted with six Toshiba turbines, three of which are reversible pump-turbines. All six turbines are equipped with Melco-manufactured generators, and they have a combined generating capacity of 1,500 megawatts (2,000,000 hp) of electricity. \r\n\r\nThe power station was completed in 1973, and has 150.9 metres (495 ft) rated head. Water is pumped through six pipelines, each 488 metres (1,601 ft) long and 5.6 metres (18 ft) in diameter, delivering water to Talbingo Reservoir. \r\n\r\nDuring 2003, Snowy Hydro commissioned six 140 kilowatts (190 hp) micro-hydro generators on the existing cooling water systems on each of the six generating units at Tumut 3 Power Station. These GreenPower accredited units enable Snowy Hydro to save approximately 3,137 tonnes (3,458 short tons) of carbon dioxide per annum. In addition, this installation not only captures previous wasted renewable energy, but also will be substantially reducing the noise that was associated with the previous pressure reducing valves on the six generating unit's cooling systems. Between 2009 and December 2011, there was a major upgrade of Tumut 3, adding additional capacity in the range of 25 megawatts (34,000 hp) to 50 megawatts (67,000 hp) per unit.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":329,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/329/tumut3.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/329/thumb\_tumut3.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/329/partner\_tumut3.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":-35.6239558,"longitude":148.3036125,"master\_project\_id":null,"name":"Tumut Hydroelectric Power Station 3","om\_contractor":"","organization":null,"owner\_1":"Snowy Hydro Limited","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.snowyhydro.com.au/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1500000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"New South Wales","status":"Operational","street\_address":"Talbingo Dam","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:02:18Z","updated\_at\_by\_admin":"2013-06-13T18:08:27Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Toshiba","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Jagersrust","commissioning\_on":"2022-05-01","companion":"","construction\_on":"2022-12-01","contact\_city":"","contact\_country":"","contact\_email":"elias.mokwena@eskom.co.za","contact\_info\_visible":false,"contact\_name":"Elias Mokwena, Plant Manager","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"South Africa","created\_at":"2013-05-29T17:06:28Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Electricity is generated only during peak demand periods or emergencies by channelling water from the upper to the lower reservoir through reversible pump-turbine sets. During periods of low energy demand this same water is pumped back from the lower to the upper storage reservoir by the reversible sets.\r\n\r\nThe Drakensberg scheme paved the way for Eskom’s second pumped storage project at Palmiet in the Cape. These power stations have the advantage of being able to generate electricity within three minutes, whereas coal-fired stations require a minimum of 8 hours from cold start-up to start generating power.\r\nBy pumping water from the lower to the upper reservoirs during low-peak periods, both the Palmiet and Drakensberg schemes help to flatten the load demand curve of the national system by using the excess generating capacity available in these off-peak periods.","developer":"Eskom","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":330,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/330/Drakensberg.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/330/thumb\_Drakensberg.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/330/partner\_Drakensberg.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":-28.5305539,"longitude":30.8958242,"master\_project\_id":null,"name":"Drakensberg Pumped Storage Scheme","om\_contractor":"","organization":null,"owner\_1":"Eskom","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Cycle efficiency: 73.7%; Power Factor: 0.9; Average production over last 3 years: 2041 GWh; Average import (pumping) over last 3 years: 2766 GWh","primary\_reference":"http://www.eskom.co.za/c/article/23/drakensberg-pumped-storage-scheme/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Black Start","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1000000,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"KwaZulu-Natal","status":"Operational","street\_address":"Kilburn Dam","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:02:12Z","updated\_at\_by\_admin":"2013-06-13T16:22:54Z","updated\_by":null,"updated\_by\_email":null,"utility":"Eskom","utility\_type":"Federally Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Grabouw","commissioning\_on":"2022-05-01","companion":"","construction\_on":"2022-11-01","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"Avi Singh","contact\_phone":"+27 021 941 5800","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"South Africa","created\_at":"2013-05-29T17:56:10Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The scheme has a dual role:\r\n- to generate electricity for the Eskom National Grid during peak and emergency demand periods\r\n- to transfer much needed water from the Palmiet River to Cape Town.\r\n\r\nWater is stored in an upper and lower reservoir. For power generating purposes, water flows from the upper reservoir to the lower reservoir via two reversible pump/turbines. During off peak periods the water collected in the lower reservoir is pumped back again.\r\n\r\nDuring winter rainfall months, excess water in the Palmiet River is pumped to the upper reservoir for transfer to the Steenbras Dam and the Cape Town water consumer.","developer":"Eskom Holdings SOC Limited","electronics\_provider":"Fuji","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":331,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/331/Palmiet.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/331/thumb\_Palmiet.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/331/partner\_Palmiet.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":-34.158688,"longitude":19.0126281,"master\_project\_id":null,"name":"Palmiet Pumped Storage Scheme","om\_contractor":"Peaking Generation","organization":null,"owner\_1":"Eskom Holdings SOC Limited","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.eskom.co.za/c/article/45/palmiet-pumped-storage-scheme/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Black Start","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"Frequency Regulation","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":400000,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"Western Cape","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:02:05Z","updated\_at\_by\_admin":"2013-07-17T18:55:40Z","updated\_by":null,"updated\_by\_email":null,"utility":"Eskom Holdings SOC Limited","utility\_type":"Federally Owned","vendor\_company":"Voith","zip":"7160"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Van Reenen's Pass","commissioning\_on":null,"companion":"","construction\_on":"2022-11-01","contact\_city":"","contact\_country":"","contact\_email":"IngulaVC@eskom.co.za","contact\_info\_visible":false,"contact\_name":"Ingula Visitors Centre","contact\_phone":"+27 (036) 342 3236","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":2750000000.0,"cost\_OPEX":null,"country":"South Africa","created\_at":"2013-05-29T18:34:56Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Pumped Storage Scheme consists of an upper and a lower dam; both of approximately 22 million cubic meters water capacity. The dams, 4.6 km apart, are connected by underground waterways, through an underground powerhouse which houses 4 x 333MW pump turbines. During times of peak energy consumption, water will be released from the upper dam through the pump turbines to the lower dam to generate electricity. During times of low energy demand the pump turbines are used to pump the water from the lower dam back up to the upper dam. \r\n\r\nThe project is scheduled to come on line during 2015/16. ","developer":"Eskom","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":333,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/333/ingula.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/333/thumb\_ingula.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/333/partner\_ingula.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-28.3833333,"longitude":29.3833333,"master\_project\_id":null,"name":"Ingula Pumped Storage Scheme","om\_contractor":"","organization":null,"owner\_1":"Eskom","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.eskom.co.za/c/article/54/ingula-pumped-storage-scheme/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Black Start","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1332000,"size\_kwh":16.0,"size\_kwh\_hours":16,"size\_kwh\_minutes":0.0,"state":"Kwa-Zulu Natal","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-09-24T20:40:59Z","updated\_at\_by\_admin":"2014-09-24T20:40:59Z","updated\_by":null,"updated\_by\_email":null,"utility":"Eskom","utility\_type":"Federally Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Valle de Calamuchita","commissioning\_on":"2022-02-14","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"rgrande@epec.com.ar","contact\_info\_visible":false,"contact\_name":"Rio Grande Complex","contact\_phone":"+54 03546- 499 401/406","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Agua y Energia","contractor\_2":"Panedile Argentina","contractor\_3":"Techint","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Argentina","created\_at":"2013-05-29T20:39:16Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Rio Grande pumped storage project is located on the Rio Grande river near the town of Santa Rosa de Calamucita in the Province of Cordoba in Argentina and contains four reversible Francis pump-turbines rated at 175 MW each. It provides electrical storage for the power grid and, in particular, for a nuclear power plant about 50 km away from Rio Grande.","developer":"","electronics\_provider":"Allis Chalmers, Siemens","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":334,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/334/rio-grande-psp.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/334/thumb\_rio-grande-psp.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/334/partner\_rio-grande-psp.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":-31.9166667,"longitude":-64.6333333,"master\_project\_id":null,"name":"Rio Grande-Cerro Pelado Hydroelectric Complex","om\_contractor":"Empresa Provincial de Energia de Cordoba (EPEC)","organization":null,"owner\_1":"Nucleoeléctrica Argentina S.A.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Boot Time: 3 minutes; Average Annual Energy Production: 970 GWh / year","primary\_reference":"http://www.epec.com.ar/docs/educativo/institucional/riogrande.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":750000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Córdoba","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:01:52Z","updated\_at\_by\_admin":"2013-12-06T21:07:33Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":2,"city":"Wivenhoe Pocket","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"Fernvale","contact\_country":"Australia","contact\_email":"energyinfo@csenergy.com.au","contact\_info\_visible":false,"contact\_name":"Wivenhoe Power Station","contact\_phone":"+61 (07) 5427 1100","contact\_state":"Queensland","contact\_street\_address":"PO Box 38","contact\_zip":"4306","contractor\_1":"Mitsui","contractor\_2":"General Electric","contractor\_3":"John Holland","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2013-05-29T21:27:10Z","created\_by\_id":1,"debt\_investor":"Government of Queensland","decommissioning\_on":null,"desc":"CS Energy’s Wivenhoe Power Station is a 500 MW, pumped storage\r\nhydroelectric plant. The plant comprises two 250 MW units and is the only pumped storage hydroelectric plant in Queensland.\r\n\r\nElectricity is generated, absorbed and stored at Wivenhoe Power Station by recycling water between an upper reservoir (Splityard Creek Dam) and lower reservoir (Wivenhoe Dam). Water is pumped from Wivenhoe Dam into Splityard Creek Dam. To produce electricity, water is released from Splityard Creek Dam through tunnels to the turbines that drive the generators. In this way, Wivenhoe Power Station works like a giant rechargeable battery.\r\n\r\nWivenhoe Power Station was transferred to CS Energy’s asset portfolio on 1 July 2022 as a result of the Queensland Government’s Generator Restructure. ","developer":"Queensland Electricity Commission","electronics\_provider":"Mitsubishi","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":335,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/335/wivenhoe.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/335/thumb\_wivenhoe.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/335/partner\_wivenhoe.jpg"}},"integrator\_company":"Snowy Mountains Engineering Corporation","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":-27.4129715,"longitude":152.637667,"master\_project\_id":null,"name":"Wivenhoe Power Station","om\_contractor":"","organization":null,"owner\_1":"Government of Queensland","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"The station can go from 0 MW idling to generating 500 MW in less than 14 seconds; 350,000 litres per second water discharge","primary\_reference":"http://www.csenergy.com.au/content-(168)-wivenhoe.htm","primary\_reference1":null,"projected\_lifetime":"100.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"Black Start","service\_use\_case\_5":"Transmission Congestion Relief","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":500000,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"Queensland","status":"Operational","street\_address":"683 Wivenhoe-Somerset Road","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:01:46Z","updated\_at\_by\_admin":"2013-07-05T23:10:56Z","updated\_by":null,"updated\_by\_email":null,"utility":"CS Energy","utility\_type":"Public Owned","vendor\_company":"Toshiba","zip":"4306"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Gordon Bay","commissioning\_on":"2022-08-08","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"external.relations@capetown.gov.za","contact\_info\_visible":false,"contact\_name":"Fritz Marx, Manager : External Relations & Protocol ","contact\_phone":"+27 21 400 1217","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"South Africa","created\_at":"2013-05-29T22:31:39Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Steenbras was the first hydroelectric pumped-storage scheme commissioned on the continent of Africa with an installed capacity of 180 MW. Apart from its economic advantages, the Steenbras pumped-storage scheme also affords an increased measure of security of supply to the City since, unlike thermal power stations, hydroelectric pumped-storage installations, can be brought into operation and up to full load within a matter of minutes.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":336,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-34.1514673,"longitude":18.8729732,"master\_project\_id":null,"name":"Steenbras Dam Pumped Storage Scheme","om\_contractor":"","organization":"","owner\_1":"City of Cape Town","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.capetown.gov.za/en/electricity/Pages/default.aspx","primary\_reference1":"http://globalenergyobservatory.org/geoid/42532","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":180000,"size\_kwh":15.5,"size\_kwh\_hours":15,"size\_kwh\_minutes":30.0,"state":"Western Cape","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2017-10-24T22:59:21Z","updated\_at\_by\_admin":"2013-07-16T00:28:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"City of Cape Town","utility\_type":"Public Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-05-30","approval\_status":0,"city":"Philadelphia","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"Turbine Air Systems","contact\_phone":"713.877.8700","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-30T17:52:30Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Before installing energy storage, the power station was experiencing only 87% of the rated output at 95°F (35°C). This output was decreasing significantly as temperatures rose. Unfortunately, this also occurred when demand was at its highest.\r\n\r\nThe power station installed TAS Energy’s Generation Storage™ solution, the combination of TAS Energy’s patented Turbine Inlet Chilling (TIC) system and a Thermal Energy Storage (TES) tank, to address the problem.\r\n\r\nThe power station was able to produce inlet air temperature of 50°F (10°C), enabling the gas turbine to generate above its ISO rating. TAS Energy also designed and engineered a TES tank to provide the ability to pull electricity from the grid at night-time hours (and pricing) to chill the water and have it stored for use the following day during peak demand.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":337,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/337/PennTAS.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/337/thumb\_PennTAS.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/337/partner\_PennTAS.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.952335,"longitude":-75.163789,"master\_project\_id":null,"name":"Power Station Generation Storage","om\_contractor":"","organization":null,"owner\_1":"PECO/Exelon Corporation","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"TIC contribution of additional 118 MW 10+% net output compared to base, ISO Neutralized heat rate","primary\_reference":"http://www.tas.com/energy-storage.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Transmission Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":6000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Pennsylvania","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2014-08-14T22:07:08Z","updated\_at\_by\_admin":"2014-08-06T21:12:56Z","updated\_by":null,"updated\_by\_email":null,"utility":"PECO","utility\_type":"Investor Owned","vendor\_company":"TAS Energy","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Anaheim","commissioning\_on":"2022-05-01","companion":"","construction\_on":null,"contact\_city":"Anaheim","contact\_country":"United States","contact\_email":"allen.t.ho@disney.com","contact\_info\_visible":false,"contact\_name":"Allen Ho, Mechanical Engineer","contact\_phone":"714-781-3293","contact\_state":"CA","contact\_street\_address":"1313 S. Harbor Blvd.","contact\_zip":"92802","contractor\_1":"Goss Engineering","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-05-30T18:20:23Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In May of 2011, Disney installed a 12,000 ton-hr chilled-water thermal energy storage tank to reduce on-peak electricity demand.\r\n\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":338,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/338/Screen\_Shot\_2015-05-19\_at\_4.28.48\_PM.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/338/thumb\_Screen\_Shot\_2015-05-19\_at\_4.28.48\_PM.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/338/partner\_Screen\_Shot\_2015-05-19\_at\_4.28.48\_PM.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.8153513,"longitude":-117.9251185,"master\_project\_id":null,"name":"Disney California Adventure","om\_contractor":"","organization":"","owner\_1":"Walt Disney Parks and Resorts","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The project team estimated the full-storage TES tank to save nearly 300,000 kWh annually, while reducing on-peak demand by approximately 2,000 kW, for an estimated yearly savings of more than $260,000.","primary\_reference":"http://www.districtenergy.org/assets/pdfs/2013CampConference/Wednesday/Track-B/1B.1HYMANGENTRYHODCATESPresentation.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":2000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"1313 Disneyland Dr.","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-11-30T20:46:11Z","updated\_at\_by\_admin":"2015-05-19T23:38:14Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":"92802"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Kangaroo Valley","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"Eraring Power Station","contact\_phone":"+61 2 4973 0700","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2013-05-30T21:56:05Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Origin operates two pumped storage hydro power stations, known as the Shoalhaven Scheme, which are located in the Southern Highlands of NSW. The Shoalhaven Scheme consists of the Kangaroo Valley and Bendeela Pumping and Power Stations, and the Fitzroy Falls Reservoir, Bendeela Pondage and Lake Yarrunga.\r\n\r\nKangaroo Valley Power Station in the Kangaroo Valley has two 80 megawatts (110,000 hp) pump turbines, for a total electricity generating capacity of 160 megawatts (210,000 hp). From Bendeela Pondage, Kangaroo Valley Pumping and Power Station lifts water a further 480 metres (1,570 ft) to Fitzroy Falls Reservoir via a tunnel, shaft, pipeline, and canal. Water available for hydro-electric power generation is discharged back down the conduits, driving turbines as it returns to Bendeela Pondage and then Lake Yarrunga.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":339,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/339/Shoalhaven\_Scheme.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/339/thumb\_Shoalhaven\_Scheme.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/339/partner\_Shoalhaven\_Scheme.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-34.733688,"longitude":150.466879,"master\_project\_id":null,"name":"Kangaroo Valley Pumping and Power Station","om\_contractor":"","organization":null,"owner\_1":"Origin","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.originenergy.com.au/4342/Shoalhaven-pump-storage-scheme","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":160000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"New South Wales","status":"Operational","street\_address":"Moss Vale Road","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:01:33Z","updated\_at\_by\_admin":"2014-07-01T14:25:05Z","updated\_by":null,"updated\_by\_email":null,"utility":"Origin","utility\_type":"Investor Owned","vendor\_company":"","zip":"2577"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Kangaroo Valley","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"Eraring Power Station","contact\_phone":"+61 2 4973 0700","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2013-05-30T22:00:03Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Origin operates two pumped storage hydro power stations, known as the Shoalhaven Scheme, which are located in the Southern Highlands of NSW. The Shoalhaven Scheme consists of the Kangaroo Valley and Bendeela Pumping and Power Stations, and the Fitzroy Falls Reservoir, Bendeela Pondage and Lake Yarrunga.\r\n\r\nBendeela Power Station has two 40 megawatts (54,000 hp) pump turbines, for a total of 80 megawatts (110,000 hp) of electricity generating capacity. Bendeela Pumping and Power Station is located on the Kangaroo River arm of Lake Yarrunga, lifts water 127 metres (417 ft) to Bendeela Pondage.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":340,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/340/Shoalhaven\_Scheme.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/340/thumb\_Shoalhaven\_Scheme.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/340/partner\_Shoalhaven\_Scheme.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-34.721119,"longitude":150.47853,"master\_project\_id":null,"name":"Bendeela Pumping and Power Station","om\_contractor":"","organization":null,"owner\_1":"Origin","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.originenergy.com.au/4342/Shoalhaven-pump-storage-scheme","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":80000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"New South Wales","status":"Operational","street\_address":"30 Jacks Corner","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:01:27Z","updated\_at\_by\_admin":"2014-07-01T14:24:40Z","updated\_by":null,"updated\_by\_email":null,"utility":"Origin","utility\_type":"Investor Owned","vendor\_company":"","zip":"2577"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Embalse Los Reyunos","commissioning\_on":"2022-07-06","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Conevial S. A. - Babic S. A.","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Argentina","created\_at":"2013-05-30T22:39:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Reyunos Dam is used to generate hydroelectricity. This is done in a power station located below the level of the reservoir. About one mile (two kilometer) downstream is a smaller, compensation dam called El Tigre. During the hours of decreased power demand, water is pumped from the reservoir of El Tigre back into Los Reyunos to stabilize the water level.","developer":"Agua y Energía Eléctrica S.E","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":341,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/341/reyunos.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/341/thumb\_reyunos.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/341/partner\_reyunos.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":-34.5921633,"longitude":-68.6707836,"master\_project\_id":null,"name":"Los Reyunos Pumped Hydro Storage","om\_contractor":"Hidroelectrica Diamante S.A.","organization":null,"owner\_1":"Pampa Energía S.A.","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Generation: 370,000,000 kWh","primary\_reference":"http://energy.org.ar/index1\_files/PROYARG/WWW/ELECTR~1/diaman2.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":224000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Mendoza","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:01:19Z","updated\_at\_by\_admin":"2013-07-06T02:50:25Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pampa Energía","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Nugara","commissioning\_on":"2022-10-31","companion":"Wind Turbines","construction\_on":"2022-03-19","contact\_city":"Hobart","contact\_country":"Australia","contact\_email":"contactus@hydro.com.au","contact\_info\_visible":false,"contact\_name":"King Island Renewable Energy Integration Project","contact\_phone":"+61 3 6230 5111","contact\_state":"Tasmania","contact\_street\_address":"GPO Box 355","contact\_zip":"7001","contractor\_1":"VOS Construction and Joinery ","contractor\_2":"RBD Electrical","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2013-06-03T22:20:07Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"On King Island, Hydro Tasmania has installed an Ecoult UltraBattery storage system, capable of 3 MW of power contribution and storing 1.6 MWh of useable energy.\r\n\r\nAt the time of installation, the battery was the largest ever installed in Australia and is located in a custom-built building at the King Island wind/diesel power station. \r\n","developer":"Hydro Tasmania","electronics\_provider":"DynaPower","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":343,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/343/king\_island\_bess.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/343/thumb\_king\_island\_bess.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/343/partner\_king\_island\_bess.jpg"}},"integrator\_company":"Hydro Tasmania","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-39.9384028,"longitude":143.9102475,"master\_project\_id":null,"name":"King Island Renewable Energy Integration Project (UltraBattery)","om\_contractor":"","organization":"","owner\_1":"Hydro Tasmania","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.kingislandrenewableenergy.com.au/project-information/energy-storage-system","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":3000,"size\_kwh":0.533333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":32.0,"state":"Tasmania","status":"Operational","street\_address":"Grassy Rd","systems\_integration":"","technology\_classification":"","technology\_type":"Hybrid Lead-acid Battery/Electro-chemical capacitor","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-28T17:48:44Z","updated\_at\_by\_admin":"2016-04-18T18:47:03Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Hydro Tasmania","utility\_type":"Public Owned","vendor\_company":"Ecoult","zip":"7256"}},{"project":{"announcement\_on":"2022-04-01","approval\_status":2,"city":"Hampton","commissioning\_on":"2022-07-01","companion":"Wind Turbines","construction\_on":"2022-02-01","contact\_city":"","contact\_country":"Australia","contact\_email":"info@ecoult.com","contact\_info\_visible":false,"contact\_name":"Tze Masters","contact\_phone":"+ 61 (02) 9241 3001","contact\_state":"NSW","contact\_street\_address":"Suite 402, Grafton Bond Building, 201 Kent Street","contact\_zip":"2000","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":6500000.0,"cost\_OPEX":null,"country":"Australia","created\_at":"2013-06-03T23:13:42Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-06-01","desc":"Ecoult provided and integrated a MW scale wind power storage system using UltraBattery® technology to address difficulties associated with the variability and uncertainty of wind power production. The project utilizes storage to smooth the 5 minute ramp rate of a wind farm. The objective of the energy storage solution implemented at Hampton is to smooth the ramp rate of the wind farm before presenting it to the grid. In turn the impact objective is to achieve higher penetration of wind and renewable energy in grid systems. It is part of a systematic effort to reduce the cost of each MWh of storage used to control renewable energy variability. The project was developed for research objectives and the batteries were recommissioned at the conclusion of the project.","developer":"","electronics\_provider":"S&C Electric","energy\_management\_software\_provider":null,"funding\_amount\_1":1825440.0,"funding\_amount\_2":1425000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"State/Provincial/Regional Grant","funding\_source\_3":"","funding\_source\_details\_1":"Australian Department of Resources, Energy and Tourism - Advanced Energy Storage Technologies Program","funding\_source\_details\_2":"NSW Department of Environment, Climate Change and Water - Climate Change Fund","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":344,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/344/Hampton\_Wind\_Farm\_1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/344/thumb\_Hampton\_Wind\_Farm\_1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/344/partner\_Hampton\_Wind\_Farm\_1.jpg"}},"integrator\_company":"CSIRO / Ecoult","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-33.6457522,"longitude":150.0478243,"master\_project\_id":null,"name":"Hampton Wind Park","om\_contractor":"","organization":null,"owner\_1":"Ecoult","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.ecoult.com/case-studies/hampton-wind-farm-australia-wind-smoothing/","primary\_reference1":null,"projected\_lifetime":"3.0","rdd\_status":"No","research\_desc":"\"The Hampton Project set out to achieve two things: 1. demonstrate capability of an energy storage solution using advanced algorithms to modify the short term intermittency of electricity produced by wind generation; and 2. increase the grid integration of wind farms while applying the minimum, hence, lowest cost of energy storage to do so.\"","research\_institution":"CSIRO","research\_institution\_link":"","service\_use\_case\_1":"Ramping ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"New South Wales","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Hybrid Lead-acid Battery/Electro-chemical capacitor","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-18T18:36:40Z","updated\_at\_by\_admin":"2016-04-18T18:36:40Z","updated\_by":null,"updated\_by\_email":null,"utility":"Origin Energy (previously Integral Energy)","utility\_type":"Investor Owned","vendor\_company":"Ecoult","zip":""}},{"project":{"announcement\_on":"2022-06-03","approval\_status":1,"city":"Cape Barren Island","commissioning\_on":null,"companion":"2 20 kW of wind turbines, 3 kW of PV capacity, 2 diesel generators of 110 kW and 87 kW","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"dean.haley@entura.com.au","contact\_info\_visible":false,"contact\_name":"Dean Haley","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"IT Power","contractor\_2":"Entura (Hydro Tasmania)","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2013-06-03T23:55:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Cape Barren Island received a major electricity upgrade in 2009 with a three-stage project that involved:\r\na) upgrading of diesel generation;\r\nb) upgrading control systems and the network;\r\nc) installation of two 20 kW wind turbines;\r\nd) installation of 3 kW of solar panels; and\r\ne) installation of a large battery bank.\r\n\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"Federal/National Equity","funding\_source\_3":"","funding\_source\_details\_1":"Public Utilities Office - Remote Renewable Power Generation Program (RRPGP)","funding\_source\_details\_2":"Department of Family and Community Services (FACS) - ","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":345,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-40.3982432,"longitude":148.2014489,"master\_project\_id":null,"name":"Cape Barren Island Hybrid System","om\_contractor":"Aurora Energy","organization":"Entura","owner\_1":"Hydro Tasmania","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.itpau.com.au/cape-barren-island-hybrid-system-power-project-department-of-families-housing-and-indigenous-affairs-fahcsia/","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":163,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Tasmania","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-06T08:09:41Z","updated\_at\_by\_admin":"2016-01-12T23:30:06Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Hydro Tasmania","utility\_type":"Public Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Gila Bend","commissioning\_on":"2022-10-09","companion":"CSP Plant","construction\_on":"2022-12-01","contact\_city":"","contact\_country":"Spain","contact\_email":"luis.rejano@solar.abengoa.com","contact\_info\_visible":true,"contact\_name":"Luis Rejano","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Abeinsa EPC","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-06-04T00:54:34Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Solana, the largest parabolic trough plant in the world, is a 280 megawatt (MW) installation with six hours of thermal storage. This technolgy allows energy to be dispatched as needed during cloudy periods and after sunset. Solana, therefore, is able to generate electricity well into the evening to help meet consumption demand.\r\n","developer":"Abengoa Solar","electronics\_provider":"Siemens","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Debt","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"US Department of Energy, Loan Guarantee Program Office (LGP) - Section 1705 Loan Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":346,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/346/solana\_operacion.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/346/thumb\_solana\_operacion.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/346/partner\_solana\_operacion.jpg"}},"integrator\_company":"Abeinsa EPC","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":32.918396,"longitude":-112.972472,"master\_project\_id":null,"name":"Solana Solar Generating Plant","om\_contractor":"Abengoa Solar","organization":"","owner\_1":"Abengoa Solar","owner\_2":"Liberty Ventures Group","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.abengoasolar.com/export/sites/abengoasolar/resources/pdf/Solana\_factsheet\_09092013.pdf","primary\_reference1":"https://www.nrel.gov/csp/solarpaces/project\_detail.cfm/projectID=23","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":280000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Arizona","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T01:26:31Z","updated\_at\_by\_admin":"2014-11-20T21:05:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"Arizona Public Service ","utility\_type":"Investor Owned","vendor\_company":"Abengoa Solar","zip":"85337"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Jacksboro","commissioning\_on":"2022-08-08","companion":"Gas Turbine","construction\_on":"2022-03-02","contact\_city":"Houston","contact\_country":"United States","contact\_email":"ksoutherland@tas.com","contact\_info\_visible":false,"contact\_name":"Kelsey Southerland","contact\_phone":"9795718094","contact\_state":"TX","contact\_street\_address":"6100 Cullen Blvd","contact\_zip":"77021","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-06-05T20:58:49Z","created\_by\_id":54,"debt\_investor":"","decommissioning\_on":null,"desc":"This is a Generation Storage system in which water is chilled at off peak and stored in a thermal energy storage tank. The following day during peak, chilled water is pulled from the tank to chill the inlet air of the gas turbine, resulting in increased output. System is weather dependent, with full 90 MW output at 95F. System offers increased MWs for capacity and/or ancillary services beginning at temperatures above 59F, with highest performance at highest temperatures","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":347,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/347/TX\_plant\_1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/347/thumb\_TX\_plant\_1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/347/partner\_TX\_plant\_1.jpg"}},"integrator\_company":"TAS Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":33.218512,"longitude":-98.1595613,"master\_project\_id":null,"name":"TAS Texas Cooperative","om\_contractor":"","organization":"","owner\_1":"Brazos Electric Cooperative","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.dntanks.com/projects/tes-for-jacksboros-natural-gas-power-plant/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Ramping ","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":90000,"size\_kwh":12.0,"size\_kwh\_hours":12,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"Jack County Plant","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T06:35:47Z","updated\_at\_by\_admin":"2015-08-24T18:53:55Z","updated\_by":null,"updated\_by\_email":null,"utility":"Brazos Electric Cooperative","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"DN Tanks","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Tonopah","commissioning\_on":"2022-01-01","companion":"Solar CSP Plant","construction\_on":"2022-09-01","contact\_city":"","contact\_country":"United States","contact\_email":"info@solarreserve.com","contact\_info\_visible":true,"contact\_name":"info","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"ACS Cobra","contractor\_2":"","contractor\_3":"","cost\_CAPEX":983000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-06-05T21:56:31Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"SolarReserve’s Crescent Dunes Solar Energy Facility located in Nevada is the first utility-scale facility in the world to feature advanced molten salt power tower energy storage capabilities. The project delivers enough firm, reliable electricity from solar energy to power 75,000 homes in Nevada during peak demand periods, day and night, whether or not the sun is shining. The project, which entered into commercial operation in late 2015 and delivers 110 megawatts of electricity plus 1,100 megawatt-hours of energy storage, is the only operating utility scale molten salt power tower on the planet.","developer":"SolarReserve","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Debt","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Loan Guarantee Program Office (LGP) - Section 1705 Loan Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":348,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/348/Crescent-Dunes\_2-SolarReserve-smaller.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/348/thumb\_Crescent-Dunes\_2-SolarReserve-smaller.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/348/partner\_Crescent-Dunes\_2-SolarReserve-smaller.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.237766,"longitude":-117.382814,"master\_project\_id":null,"name":"Crescent Dunes Solar Energy Project","om\_contractor":"","organization":"","owner\_1":"Tonopah Solar Energy, LLC","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.solarreserve.com/en/global-projects/csp/crescent-dunes","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time 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Owned","vendor\_company":"SolarReserve","zip":""}},{"project":{"announcement\_on":"2022-06-06","approval\_status":2,"city":"Sendai-shi","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Sendai-shi","contact\_country":"Japan","contact\_email":"info-eco@mail.kankyo.tohoku.ac.jp","contact\_info\_visible":true,"contact\_name":"Public Relations Office","contact\_phone":"81-22-795-7408","contact\_state":"Miyagi prefecture","contact\_street\_address":"6-6-20, Aramaki Aza Aoba, Aobaku, ","contact\_zip":"980-8579","contractor\_1":"System Appliers Co.","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-06-06T10:27:36Z","created\_by\_id":107,"debt\_investor":"","decommissioning\_on":null,"desc":"Graduate School of Environmental Studies, Tohoku University has been selected for the Ministry of Economy, Trade and Industry 2011 New Industries Creative Technology Development Cost Subsidy (Research and development business for the creation of new industries through IT fusion Preparing and IT fusion consortium base for industry, academia and government)), and the construction of a Smart Building DC/AC hybrid control system is advancing at the main building of this graduate course, in an attempt to develop technology that will serve as a base for realizing a smart community network, and to provide various next-generation services, such as visualized portal sites, car sharing services and energy accommodation between buildings.","developer":"","electronics\_provider":"Delta Electronics, Inc.","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":350,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/350/DSC\_0801.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/350/thumb\_DSC\_0801.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/350/partner\_DSC\_0801.JPG"}},"integrator\_company":"NTT COMWARE Corporation","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.268215,"longitude":140.8693558,"master\_project\_id":null,"name":"DC/AC Hybrid Control System for Smart Building","om\_contractor":"","organization":null,"owner\_1":"Tohoku University","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.kankyo.tohoku.ac.jp/pdf/dcac\_hybrid\_en.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"Black Start","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":48,"size\_kwh":1.2,"size\_kwh\_hours":1,"size\_kwh\_minutes":12.0,"state":"Miyagi","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-14T22:00:22Z","updated\_at\_by\_admin":"2014-08-12T21:26:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Sony","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Upington","commissioning\_on":"2022-02-02","companion":"CSP Plant","construction\_on":"2022-11-01","contact\_city":"","contact\_country":"Spain","contact\_email":"luis.rejano@solar.abengoa.com","contact\_info\_visible":false,"contact\_name":"Luis Rejano","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Abeinsa EPC","contractor\_2":"Rioglass","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"South Africa","created\_at":"2013-06-07T20:37:58Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Khi Solar One is a 50 MW concentrated solar power plant with a power tower.\r\n\r\nThe power tower system uses large, sun-tracking mirrors (heliostats) to focus sunlight on a receiver at the top of a tower. Water is pumped up to the tower mounted receiver and is converted to steam, which, in turn, is used in a conventional turbine generator to produce electricity. Of the 36 operational CSP power stations worldwide, five are power towers. The power station will include a facility to store steam, enabling it to generate electricity for two hours when the sun is not shining.\r\n\r\nKhi Solar One will use dry cooling, which dramatically reduces water consumption by two thirds. The tower plant will be located on a 600 ha site close to Upington, in the Northern Cape Province.\r\n\r\nhttp://www.nrel.gov/csp/solarpaces/project\_detail.cfm/projectID=244","developer":"","electronics\_provider":"Siemens","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Renewable Energy Independent Power Producer Procurement Programme DOE (South Africa)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":352,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/352/d1a418e092c68ea709cf6ac3f35e5089.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/352/thumb\_d1a418e092c68ea709cf6ac3f35e5089.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/352/partner\_d1a418e092c68ea709cf6ac3f35e5089.jpg"}},"integrator\_company":"Abeinsa EPC","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-28.4,"longitude":21.266667,"master\_project\_id":null,"name":"Khi Solar One Power Plant","om\_contractor":"Abengoa Solar","organization":"","owner\_1":"Abengoa Solar","owner\_2":"Industrial Development Corporation & Khi Solar One","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":51.0,"ownership\_percentage\_2":49.0,"performance":"","primary\_reference":"http://www.abengoasolar.com/web/en/plantas\_solares/plantas\_propias/sudafrica/#seccion\_2","primary\_reference1":"https://renewablesnow.com/news/abengoa-lauds-24-hour-operation-of-s-african-solar-tower-519041/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":50000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Northern Cape","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Heat Thermal Storage","technology\_type\_l1":"Heat Thermal Storage","technology\_type\_l2":"Heat Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T17:51:33Z","updated\_at\_by\_admin":"2014-10-21T22:25:26Z","updated\_by":null,"updated\_by\_email":null,"utility":"Eskom","utility\_type":"Federally Owned","vendor\_company":"Abengoa Solar","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Pofadder","commissioning\_on":"2022-03-02","companion":"CSP Plant","construction\_on":"2022-11-01","contact\_city":"","contact\_country":"Spain","contact\_email":"luis.rejano@solar.abengoa.com","contact\_info\_visible":false,"contact\_name":"Luis Rejano","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Abeinsa EPC","contractor\_2":"Rioglass","contractor\_3":"Schott","cost\_CAPEX":null,"cost\_OPEX":null,"country":"South Africa","created\_at":"2013-06-07T20:50:32Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"KaXu Solar One is a 100MW parabolic trough plant near Pofadder in Northern Cape. The power station will have a storage capacity of two and a half hours and use molten salt to store heat energy.\r\n\r\nIn the parabolic trough system, the sun's energy is concentrated by parabolically curved, trough-shaped reflectors onto a receiver pipe running along the focal line of the curved surface. This energy heats oil flowing through the pipe, and the heat energy is then used to convert water to steam and generate electricity in a conventional steam generator.","developer":"Abengoa Solar","electronics\_provider":"Siemens","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy (South Africa) - Renewable Energy Independent Power Producer Procurement Programme","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":353,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/353/kaxu.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/353/thumb\_kaxu.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/353/partner\_kaxu.jpg"}},"integrator\_company":"Abeinsa EPC","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-28.880269,"longitude":19.59226,"master\_project\_id":null,"name":"Kaxu Solar One","om\_contractor":"Abengoa Solar","organization":"","owner\_1":"Abengoa Solar","owner\_2":"Industrial Development Corporation & KaXu Solar One","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":51.0,"ownership\_percentage\_2":49.0,"performance":"","primary\_reference":"http://www.abengoasolar.com/export/sites/abengoasolar/resources/pdf/KaXuSolarOne-factsheet.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":100000,"size\_kwh":2.5,"size\_kwh\_hours":2,"size\_kwh\_minutes":30.0,"state":"Northern Cape","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T06:29:07Z","updated\_at\_by\_admin":"2015-03-06T17:15:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"Eskom","utility\_type":"Federally Owned","vendor\_company":"Abengoa Solar","zip":""}},{"project":{"announcement\_on":"2022-05-01","approval\_status":1,"city":"Globershoop","commissioning\_on":"2022-01-01","companion":"CSP Plant","construction\_on":"2022-06-01","contact\_city":"","contact\_country":"","contact\_email":"info@solarreserve.com","contact\_info\_visible":false,"contact\_name":"ACWA Power (South Africa)","contact\_phone":"27 7651 53 412","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"TSK Electrónica y Electricidad","contractor\_2":"Acciona","contractor\_3":"Sener Ingeniería y Sistemas","cost\_CAPEX":517000000.0,"cost\_OPEX":null,"country":"South Africa","created\_at":"2013-06-07T21:10:06Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Bokpoort CSP Project comprises a solar field, a power block, a thermal energy storage system and related infrastructure such as grid interconnection and water abstraction and treatment systemd. The solar field comprises loops of parabolic trough solar collector assemblies which will collect the heat from the sun. The solar collectors will be capable of heating the heat transfer fluid up to 393°C. The power block comprises a solar steam generator and a steam turbine delivering 50 MW (net). \r\n\r\nhttp://www.esi-africa.com/sa-s-third-csp-project-under-construction/\r\n\r\nhttp://www.nrel.gov/csp/solarpaces/project\_detail.cfm/projectID=271","developer":"ACWA Power ","electronics\_provider":"Siemens","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy (South Africa) - Renewable Energy Independent Power Producer Procurement Programme","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":354,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/354/industrial-bookport-02.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/354/thumb\_industrial-bookport-02.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/354/partner\_industrial-bookport-02.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-28.727278,"longitude":21.997768,"master\_project\_id":null,"name":"Bokpoort Concentrated Solar Plant ","om\_contractor":"","organization":"","owner\_1":"ACWA Power Solafrica Bokpoort CSP Power Plant (Pty) Ltd","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.acwapower.com/en/projects/assets/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":55000,"size\_kwh":9.0,"size\_kwh\_hours":9,"size\_kwh\_minutes":0.0,"state":"Northern Cape","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T07:52:22Z","updated\_at\_by\_admin":"2016-05-10T01:32:32Z","updated\_by":null,"updated\_by\_email":null,"utility":"Eskom","utility\_type":"Federally Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"New York","commissioning\_on":"2022-10-03","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":" Jay Frankhouser","contact\_phone":"215-619-7818","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-06-07T22:05:17Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Today in New York City, Glenwood Management reveals Manhattan’s first battery-based, intelligent energy storage system providing 225 kilowatts (kW) of power with 2 megawatt hours (MWh) of stored energy capacity to a New York City high rise. The Joule.System™ designed by Demand Energy Networks, Inc. is located at Glenwood’s flagship property, Barclay Tower, a 58-story luxury residential high rise located at 10 Barclay Street near the new World Trade Center, New York.","developer":"Glenwood Management","electronics\_provider":"Demand Energy Networks, Inc.","energy\_management\_software\_provider":"","funding\_amount\_1":500000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Equity","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":355,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/355/barclay-tower.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/355/thumb\_barclay-tower.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/355/partner\_barclay-tower.jpg"}},"integrator\_company":"Demand Energy Networks, Inc.","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.7123202,"longitude":-74.0088229,"master\_project\_id":null,"name":"Barclay Tower - Glenwood Management","om\_contractor":"","organization":"C&D Technologies","owner\_1":"Glenwood Management","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://demand-energy.com/wp-content/uploads/2017/04/DEN\_GlenwoodNYC\_BarclayTower\_pr\_100312.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":225,"size\_kwh":8.88333333333333,"size\_kwh\_hours":8,"size\_kwh\_minutes":53.0,"state":"New York","status":"Operational","street\_address":"10 Barclay Street","systems\_integration":"","technology\_classification":"","technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-03T07:31:20Z","updated\_at\_by\_admin":"2014-07-23T19:53:34Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Consolidated Edison Company of New York (Con Edison)","utility\_type":"Investor Owned","vendor\_company":"C&D Technologies","zip":"10007"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"San Francisco","commissioning\_on":"2022-09-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"harry.hobbs@ihg.com","contact\_info\_visible":false,"contact\_name":"Harry Hobbs","contact\_phone":"415-616-6552","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-06-07T22:31:20Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The InterContinental San Francisco opened in February 2008 and is a LEED EBOM Gold Certified building. \r\n\r\nThe InterContinental San Francisco has already benefited from traditional energy conservation and efficiency measures. Additional measures would have been difficult without compromising the comfort of hotel guests. Harry Hobbs, IHG's Western Area Director of Engineering, was looking for a way to tackle high demand charges due to load spikes, which are not addressed through standard energy efficiency measures. \r\n\r\nAfter hearing about the Stem system, Harry decided to deploy systems in both San Francisco InterContinental hotels. Harry was able to take advantage of the California Self-Generation Incentive Program (SGIP) to cover 60% of the system installation cost.\r\n\r\nStem's solution was installed in November 2012 and immediately began leveraging the proprietary combination of big data, predictive analytics, and energy storage to effectively \"hybridize\" the hotels by intelligently switching between battery power and grid power to reduce energy costs. \r\n\r\nIndependent verification of results was conducted by corporate staff using a third party revenue-grade meter and simulated load. As a result, IGH has committed to purchasing Stem systems for is California portfolio of 16 hotels in 2013, with a projected savings of $2.2 million over the next 10 years.","developer":"Stem","electronics\_provider":"Stem","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":356,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/356/Intercontinental\_hotels\_pictures.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/356/thumb\_Intercontinental\_hotels\_pictures.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/356/partner\_Intercontinental\_hotels\_pictures.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.7818037,"longitude":-122.4047743,"master\_project\_id":null,"name":"InterContinental Hotels Group Stem Energy Optimization System","om\_contractor":"","organization":null,"owner\_1":"InterContinental Hotels San Francisco","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.stem.com/customers","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":15,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"888 Howard St. ","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-09-08T14:33:52Z","updated\_at\_by\_admin":"2014-09-08T14:33:52Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"CODA Energy","zip":"94103"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"New York","commissioning\_on":"2022-06-04","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"banerjee@che.ccny.cuny.edu ","contact\_info\_visible":false,"contact\_name":"Dr. Sanjoy Banerjee","contact\_phone":"(212) 650-5728","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"CUNY Energy Institute","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-06-07T23:19:08Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In partnership with the CUNY Energy Institute, Urban Electric Power (UEP) has recently constructed a 100kW energy storage system utilizing the advanced Zn-NiO battery technology that can undergo over 5,000 deep discharge cycles with a high total system energy efficiency of >85%. The 100kW battery installation in the basement of Steinman Hall at the Grove School of Engineering at CCNY will allow the school to reduce their peak power usage, resulting in significant electrical energy savings. The system is rated for 100kW and is being installed in 2 phases; the first phase, which will be operational in June 2013, will allow the delivery of the rated power for a period of 30 minutes. The second phase will be completed by the end of 2013 and will increase the capacity of the system to 200kWh, allowing the delivery of the rated power over 2 hours.","developer":"CUNY Energy Institute","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":2997133.0,"funding\_amount\_2":250000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"State/Provincial/Regional RD&D","funding\_source\_3":"","funding\_source\_details\_1":"Advanced Research Projects Agency-Energy (ARPA-E) - Grid Scale Rampable Intermittent Dispatchable Storage (GRIDS)","funding\_source\_details\_2":"NYSERDA - NY Battery and Energy Storage Technology (NY-BEST)","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":357,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.8195475,"longitude":-73.9495176,"master\_project\_id":null,"name":"UEP Steinman Hall Demonstration - CUNY Energy Institute","om\_contractor":"","organization":"CUNY Energy Institute","owner\_1":"Urban Electric Power","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"High total system energy efficiency >85%","primary\_reference":"http://www.ny-best.org/page/member-spotlight-urban-electric-power","primary\_reference1":"https://www.ccny.cuny.edu/news/CUNY-Energy-Institute-Battery-System","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"CUNY Energy Institute","research\_institution\_link":"http://www.cuny.edu/site/energy.html","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":100,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"New York","status":"Operational","street\_address":"160 Convent Ave.","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc-nickel Oxide Flow Battery","technology\_type\_l1":"Other","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-18T06:45:07Z","updated\_at\_by\_admin":"2014-06-26T20:50:38Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Consolidated Edison Company of New York (Con Edison)","utility\_type":"Investor Owned","vendor\_company":"Urban Electric Power","zip":"10031"}},{"project":{"announcement\_on":"2022-06-11","approval\_status":2,"city":"Sendai","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Sendai-shi","contact\_country":"Japan","contact\_email":"info-eco@mail.kankyo.tohoku.ac.jp","contact\_info\_visible":true,"contact\_name":"Public Relations Office","contact\_phone":"81-22-795-7408","contact\_state":"Miyagi prefecture","contact\_street\_address":"6-6-20, Aramaki, Aza, Aoba, Aobaku,","contact\_zip":"980-8579","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-06-11T06:36:16Z","created\_by\_id":106,"debt\_investor":"","decommissioning\_on":null,"desc":" The name “Ecollab.” is a combination of the words “ecology”, “collaboration,” and “laboratory”. Ecollab. is a simple and airy building with a modern appearance and a warm and soft atmosphere. At Ecollab. research is carried out from a variety of aspects aimed at creating the next generation of environmentally-friendly lifestyles.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":358,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/358/Eco\_House.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/358/thumb\_Eco\_House.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/358/partner\_Eco\_House.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.268215,"longitude":140.8693558,"master\_project\_id":null,"name":"Eco House Project","om\_contractor":"","organization":null,"owner\_1":"Tohoku University","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.kankyo.tohoku.ac.jp/pdf/ecollab\_e.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":14,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Miyagi","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-07-03T23:59:01Z","updated\_at\_by\_admin":"2014-07-03T23:59:01Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Huanggang","commissioning\_on":"2022-11-21","companion":"","construction\_on":null,"contact\_city":"Chaoyang District","contact\_country":"China","contact\_email":"cggc@cggcintl.com","contact\_info\_visible":false,"contact\_name":"China Gezhouba Group Corporation","contact\_phone":"+86-10-59525952","contact\_state":"Beijing","contact\_street\_address":"21F,Tower A,Gemdale Plaza No.91 Jianguo Road","contact\_zip":"100022","contractor\_1":"China Gezhouba Group Corporation ","contractor\_2":"SinoHydro","contractor\_3":"HydroChina Zhongnan Engineering","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-06-11T21:04:58Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Bailianhe Pumped Storage Power Station is a pumped-storage hydroelectric power station located 58 km (36 mi) east of Huanggang in Hubei Province, China. It was constructed between 2004 and 2009 and has a 1,200 MW installed capacity. The power station operates by shifting water between an upper and lower reservoir to generate electricity. For this project, only the upper reservoir had to be created as an existing reservoir, the Bailianhe Reservoir, was used as the lower. During periods of low energy demand, such as at night, water is pumped from Bailianhe Reservoir up to the upper reservoir. When energy demand is high, the water is released back down to the lower reservoir but the pump turbines that pumped the water up now reverse mode and serve as generators to produce electricity. The process is repeated as necessary and the plant serves as a peaking power plant.","developer":"China Gezhouba Group Corporation","electronics\_provider":"Geokon Instruments","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":359,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/359/bailianhe.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/359/thumb\_bailianhe.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/359/partner\_bailianhe.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":30.6087078,"longitude":115.5592266,"master\_project\_id":null,"name":"Bailianhe Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"State Grid Xinyuan Co Ltd","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"While generating electricity, the pump-generators produce 967 million kWh annually and consumes 1,289 kWh when pumping.","primary\_reference":"http://www.gzbgj.com/english/article.aspx?menuid=1385&tab=tab\_e&tabid=1203","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1200000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Hubei","status":"Operational","street\_address":"Bailianhe Reservoir","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:01:13Z","updated\_at\_by\_admin":"2013-11-29T23:52:58Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Alstom","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Huixian","commissioning\_on":"2021-12-15","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"Li DING, Alstom","contact\_phone":"+86 10 8460 9000","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"HydroChina Corporation","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-06-11T21:29:23Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Baoquan Pumped Storage Power Station is a pumped-storage hydroelectric power station located 34 km (21 mi) northeast of Jiaozuo in Henan Province, China. It was constructed between June 2004 and December 2011 and has a 1,200 MW installed capacity.[2] The power station operates by shifting water between an upper and lower reservoir to generate electricity. The lower reservoir was formed by raising the height of the existing Baoquan Dam while the Upper Baoquan Reservoir is located in a valley above the north side of the lower reservoir. During periods of low energy demand, such as at night, water is pumped from Baoquan Reservoir up to the upper reservoir. When energy demand is high, the water is released back down to the lower reservoir but the pump turbines that pumped the water up now reverse mode and serve as generators to produce electricity. The process is repeated as necessary and the plant serves as a peaking power plant.","developer":"","electronics\_provider":"Geokon Instruments","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":360,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":35.460431,"longitude":113.476333,"master\_project\_id":null,"name":"Baoquan Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"State Grid Henan Baoquan Pumped Storage Co.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"While generating electricity, the pump-generators produce 2,010 million kWh annually and consumes 2,642 million kWh when pumping.","primary\_reference":"http://www.hydrochina.com.cn/gcjs/dbx/zj/2.jsp","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1200000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Xinxiang","status":"Operational","street\_address":"Baoquan Reservoir","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:01:08Z","updated\_at\_by\_admin":"2013-11-29T23:52:48Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Alstom","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Changsha","commissioning\_on":"2022-10-01","companion":"","construction\_on":"2022-05-01","contact\_city":"","contact\_country":"","contact\_email":"christine.rahard@chq.alstom.com","contact\_info\_visible":false,"contact\_name":"Christine Rahard-Burnat (SVP, Corporate Communication) ","contact\_phone":"+33 (0)1 41 49 32 95","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"SinoHydro","contractor\_2":"HydroChina Zhongnan Engineering","contractor\_3":"China Gezhouba Group","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-06-11T22:32:27Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Heimifeng Pumped Storage Power Station is located in the hills 25 km (16 mi) north of Changsha in Hunan Province, China. It is a pumped-storage hydroelectric power station with an installed capacity of 1,200 MW. It was constructed between 2005 and 2009 with the generators being commissioned in 2009 and 2010. The station generates power by transferring water between an upper and lower reservoir. When energy demand is high, water from the upper reservoir is released and used to generate electricity before being discharged into the lower reservoir. During times of low demand, water from the lower reservoir is then pumped back up to replenish upper reservoir. This process allows the station to meet peak energy demand and it can go from standstill to operational in three minutes.","developer":"China Power Investment Corporation","electronics\_provider":"Dongfang","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":361,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/361/heimifeng.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/361/thumb\_heimifeng.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/361/partner\_heimifeng.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":28.228209,"longitude":112.938814,"master\_project\_id":null,"name":"Heimifeng Pumped Storage Power Station","om\_contractor":"Wuling Electric Power Co.","organization":null,"owner\_1":"China Power Investment Corporation","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The station generates 1.606 billion kWh annually and consumes 2.16 billion kWh in pumping mode.","primary\_reference":"http://www.baju.com.cn/Web/Production/ProductionShow.asp?ID=42","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1200000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Hunan","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:01:02Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Alstom","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"San Jose","commissioning\_on":"2022-05-20","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"d1fc@pge.com","contact\_info\_visible":false,"contact\_name":"Dave Fribush","contact\_phone":"415-973-7920","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-06-11T22:48:53Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This 4 MW Sodium Sulfur battery system is located at the research facility for HGST, Inc. in San Jose, CA. The system supports power quality and reliability for customers on the distribution feeder, has the ability to island the HGST facility, and can be used for studying various battery functionalities such as load shaping and smoothing of intermittent resources. PG&E, working in coordination with Electric Power Research Institute via a grant from the California Energy Commission, is studying the system’s performance and functionalities and making these reports available to the public. \r\n\r\nDC Systems provided the grid interconnection and utility control software that enables the various operating modes. ","developer":"Pacific Gas and Electric Company","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":3300000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"California Energy Commission - Public Interest Energy Research Program (PIER)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":362,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/362/yerba\_buena.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/362/thumb\_yerba\_buena.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/362/partner\_yerba\_buena.jpg"}},"integrator\_company":"S&C Electric Company, DC Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.3061821,"longitude":-121.7519381,"master\_project\_id":null,"name":"Yerba Buena Battery Energy Storage Pilot Project - Pacific Gas & Electric Company","om\_contractor":"","organization":"","owner\_1":"Pacific Gas and Electric Company","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.pge.com/about/newsroom/newsreleases/20130523/pge\_energy\_commission\_unveil\_battery\_energy\_storage\_in\_san\_jose.shtml","primary\_reference1":"https://cleantechnica.com/2015/10/15/yerba-buena-4-mw-28-mwh-energy-storage-project-recognized-innovative/","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"On-Site Power","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"Renewables Energy Time Shift","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":4000,"size\_kwh":7.0,"size\_kwh\_hours":7,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"3403 Yerba Buena Road","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-26T06:13:30Z","updated\_at\_by\_admin":"2015-08-22T00:55:15Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":"95135"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Dandong","commissioning\_on":"2022-09-29","companion":"","construction\_on":"2022-08-01","contact\_city":"","contact\_country":"","contact\_email":"sgcc-info@sgcc.com.cn","contact\_info\_visible":false,"contact\_name":"State Grid Corporation","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"HydroChina Corporation","contractor\_2":"","contractor\_3":"","cost\_CAPEX":712000000.0,"cost\_OPEX":null,"country":"China","created\_at":"2013-06-12T00:17:34Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Pushihe pumped-storage hydropower plant in northeast China's Liaoning Province commisioned the 4th and last of its pump-turbines in September, 2012. \r\n\r\nConstruction on the RMB 4.5 billion ($712.70 million) plant in east Liaoning's Kuandian Manchu Autonomous County began in 2006.","developer":"State Grid Xinyuan Co Ltd","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":363,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":40.0005,"longitude":124.354707,"master\_project\_id":null,"name":"Pushihe Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"State Grid Xinyuan Co Ltd","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Average annual generation: 1,860 GWh; Overall efficiency: 77.2%","primary\_reference":"http://baike.baidu.com/view/4308042.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1200000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Liaoning","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:00:57Z","updated\_at\_by\_admin":"2013-06-12T00:18:52Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Alstom","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Huizhou","commissioning\_on":"2022-06-15","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"christine.rahard@chq.alstom.com","contact\_info\_visible":false,"contact\_name":"Christine Rahard-Burnat (SVP, Corporate Communication) ","contact\_phone":"+33 (0)1 41 49 32 95","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-06-12T00:55:00Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Huizhou Pumped Storage Power Station is a pumped storage hydroelectric power station near Huizhou in Guangdong province, China. It contains 8 pump-generators that total a 2,448 MW installed capacity. Initial units went online between 2007 and 2008,and the power station was complete on June 15, 2011.\r\n\r\nThe Guangdong power grid requires emergency reserve capacity of 5000MW. Guangzhou Pumped Storage can provide about 900MW.","developer":"","electronics\_provider":"Geokon Instruments","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":364,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/364/huizhou\_pumped\_storage\_power\_station.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/364/thumb\_huizhou\_pumped\_storage\_power\_station.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/364/partner\_huizhou\_pumped\_storage\_power\_station.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":23.111847,"longitude":114.416196,"master\_project\_id":null,"name":"Huizhou Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Guangdong Pumped Storage Power Company Limited","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Generation: 4,500,000,000 kWh; Annual Consumption while Pumping: 6,003,000,000; Efficiency: 74.96%","primary\_reference":"http://baike.baidu.com/view/4304113.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":2448000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Guangdong","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:00:51Z","updated\_at\_by\_admin":"2013-11-29T23:53:09Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Alstom","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Jingxing","commissioning\_on":"2022-02-01","companion":"","construction\_on":"2022-12-06","contact\_city":"","contact\_country":"","contact\_email":"zhongqiu.shao@power.alstom.com","contact\_info\_visible":false,"contact\_name":"Zhong Qiu Shao, Alstom","contact\_phone":"+ 86 10 6410 6235 ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"China Gezhouba Group Corporation ","contractor\_2":"China National Complete Engineering Corporation (CCEC)","contractor\_3":"HydroChina Beijing Engineering","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-06-12T19:20:04Z","created\_by\_id":1,"debt\_investor":"Asian Development Bank (ADB)","decommissioning\_on":null,"desc":"Zhanghewan Pumped Storage Power Station is located on the Gantao River, Jingxing county, Hebei province, 45 km away from Jingxing and 77 km from Shijiazhuang city. 4 reversible pump-turbine generator units of 250 MW are installed in the underground power house, with a the total installed capacity of 1,000 MW. Construction of the project is estimated to have cost 4.12 billion yuan.","developer":"State Grid Xinyuan Co Ltd","electronics\_provider":"Voith, Geokon Instruments","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":365,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/365/zhanghewan01.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/365/thumb\_zhanghewan01.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/365/partner\_zhanghewan01.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":37.965032,"longitude":114.084152,"master\_project\_id":null,"name":"Zhanghewan Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"State Grid Xinyuan Co Ltd.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"In generating mode, rated head 305.0 m, flow rate 94.1 m3/s, rated output 255 MW; In pumping mode, max. lift 350.8 m, max. flow rate 61.5 m3/s, max. input power 225 MW; ","primary\_reference":"http://hydrochina.net/en/businesslistcaseshow.aspx?ProductsID=774&CaseId=310&CateId=310&pid=288","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1000000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Hebei Province","status":"Operational","street\_address":"Gantao River","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:00:46Z","updated\_at\_by\_admin":"2013-11-29T23:54:29Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Alstom","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Hohhot","commissioning\_on":"2022-11-20","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"christine.rahard@chq.alstom.com","contact\_info\_visible":false,"contact\_name":"Christine Rahard-Burnat (SVP, Corporate Communication)","contact\_phone":"+33 (0)1 41 49 32 95","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"HydroChina Beijing Engineering","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-06-12T20:02:20Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Hohhot pumped-storage plant (PSP) is located in Inner Mongolia, 20 km from Hohhot. Four reversible units, each with an installed capacity of 306 MW, will be installed in the power station for a total installed capacity of 1,224 MW. This PSP complements the customer’s wind farm, as well as providing the electrical network with power for peak demand, supplemental power for periods of reduced production, energy storage for emergency power stand-by and frequency regulation.\r\n","developer":"China Three Gorges Corporation","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":366,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":40.842299,"longitude":111.749138,"master\_project\_id":null,"name":"Hohhot Pumped Storage Power Station - Alstom / GE","om\_contractor":"","organization":null,"owner\_1":"China Three Gorges Corporation","owner\_2":"Inner Mongolia Hohhot Pumped Storage Power Generation Co., Ltd.","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":51.0,"ownership\_percentage\_2":10.0,"performance":"Projected Annual Pumping: 2.677 billion kWh; Projected Annual Generation: 2.007 billion kwh; Round Trip Efficiency: 74.97%","primary\_reference":"http://alstomenergy.gepower.com/Global/Power/Resources/Documents/Brochures/hohhot-hydro-pumped-storage-power-plant-epslanguage=fr-FR.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1224000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Inner Mongolia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-16T19:05:40Z","updated\_at\_by\_admin":"2016-05-16T19:05:40Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Alstom","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Guangzhou","commissioning\_on":"2022-06-01","companion":"","construction\_on":"2022-05-01","contact\_city":"","contact\_country":"","contact\_email":"clppower@pub.guangzhou.gd.cn","contact\_info\_visible":false,"contact\_name":"Guangzhou CLP Office","contact\_phone":"(8620) 8752 0178","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Fourteenth Construction Bureau","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-06-12T20:38:01Z","created\_by\_id":1,"debt\_investor":"Asian Development Bank (ADB)","decommissioning\_on":null,"desc":"Guangzhou pumped storage power station (GPSPS) is currently the largest pumped storage power station around the world. It has 2400MW installed capacity, which includes 8 reversible pumped storage units, whose gross head is 535 m. The station is built in 2 stages. During Stage 1 (1989.5-1994.3) it built in 4\*300MW's reversible units which were imported from France, and in Stage 2 (1994.9-2000.6) it built in 4\*300MW's reversible units which were imported from Germany. The project complex is made up of upper and lower reservoir, waterway system, underground power house and T&D works.\r\n\r\nConstruction of the plant in total cost approximately 5.8 billion yuan.","developer":"Hong Kong Pumped Storage Development Company, Limited (PSDC)","electronics\_provider":"Neyrpic, Voith, A-J, Siemens, Peebles, ABB","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":367,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/367/guangzhou2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/367/thumb\_guangzhou2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/367/partner\_guangzhou2.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":23.1404452,"longitude":113.3400655,"master\_project\_id":null,"name":"Guangzhou Pumped Storage Power Station","om\_contractor":"Guangdong Electric Power","organization":null,"owner\_1":"Guangdong Pumped Storage Co. Ltd. (CLP Group)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Max Generating Power (per pump): 347,700 kW w/ Max Flow: 72.2 m3 / s.; Max Pumping Power (per pump) 326,080 kW w/ Max Flow: 60.03 m3 / s.","primary\_reference":"http://www.chincold.org.cn/dams/rootfiles/2010/07/20/1279253974055450-1279253974057795.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":2400000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Guangdong","status":"Operational","street\_address":"Longkou East Road","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:00:34Z","updated\_at\_by\_admin":"2013-12-06T21:10:25Z","updated\_by":null,"updated\_by\_email":null,"utility":"CLP Group","utility\_type":"Investor Owned","vendor\_company":"Alstom","zip":""}},{"project":{"announcement\_on":"2022-06-13","approval\_status":0,"city":"Afourer","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"boutmoila@one.ma","contact\_info\_visible":false,"contact\_name":"Brahim Boutmoila ","contact\_phone":"+212.5.22.66.80.21","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"La Société Générale des Travaux du Maroc (SGTM)","contractor\_2":"Alstom","contractor\_3":"Alkor Draka","cost\_CAPEX":220000000.0,"cost\_OPEX":null,"country":"Morocco","created\_at":"2013-06-13T17:55:59Z","created\_by\_id":1,"debt\_investor":"Arab Fund for Economic and Social Development, European Investment Bank","decommissioning\_on":null,"desc":"The Afourer Pumped Storage Station is a pumped storage hydroelectric scheme located in the hills above Afourer of Azilal Province, Morocco. The scheme consists of two power stations with a combined installed capacity of 465 MW. Construction on the project began in 2001 and was complete in 2004. It was funded by the Arab Fund for Economic & Social Development at a cost of US$220 million.\r\n\r\nWater for the scheme is derived from the Aït Ouarda Dam on the El Abid River at 32°06′32″N 06°30′34″W, just downstream of the Bin el Ouidane Dam. Water from the dam is pumped up 600 m (1,969 ft) in elevation via Step 1 to the Upper Afourer Reservoir at 32°10′32″N 06°32′02″W which has a capacity of 1,260,000 m3 (1,021 acre·ft) and lies at at elevation of 1,280 m (4,199 ft) above sea level. Step 1's power and pumping station contains 2 x 172.5 MW reversible Francis turbines. From the upper reservoir, water can be released back to Step 1 for power generation or released 800 m (2,625 ft) down in elevation to the Lower Afourer Reservoir at 32°12′36″N 06°31′01″W which lies at an elevation of 480 m (1,575 ft) and also has a capacity of 1,260,000 m3 (1,021 acre·ft). The power station at the lower reservoir, Step 2, contains 2 x 60 MW reversible Francis turbines From the lower reservoir, water can be pumped back into the upper reservoir or released into a canal near Afourer for use in irrigation.","developer":"Office National de l'Electricite (ONE)","electronics\_provider":"Alstom","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":368,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/368/afourer.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/368/thumb\_afourer.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/368/partner\_afourer.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":32.2081442,"longitude":-6.5393382,"master\_project\_id":null,"name":"Afourer Pumped Storage Scheme","om\_contractor":"","organization":null,"owner\_1":"Office National de l'Electricite (ONE)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://en.wikipedia.org/wiki/Afourer\_Pumped\_Storage\_Station","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":465000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Beni-Mellal Province","status":"Operational","street\_address":"R301","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:00:28Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Office National de l'Electricite (ONE)","utility\_type":"Federally Owned","vendor\_company":"Alstom","zip":""}},{"project":{"announcement\_on":"2022-01-31","approval\_status":0,"city":"Agadir","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"boutmoila@one.ma","contact\_info\_visible":false,"contact\_name":"Brahim Boutmoila ","contact\_phone":"+212.5.22.66.80.21","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Power Consulting Associates","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Morocco","created\_at":"2013-06-13T19:35:40Z","created\_by\_id":1,"debt\_investor":"European Investment Bank, African Development Bank Group","decommissioning\_on":null,"desc":"The Abdelmoumen Pumped Power Transfer Station Project (STEP) is located about 70 km Northeast of Agadir. The site is located upstream of the existing reservoir of the Abdelmoumen dam on the Oued Issen. It falls under Taroudant Province and Bigoudine rural council. The Abdelmoumen STEP Project will reinforce the national electricity grid in the South. The STEP provides energy capacity as follows: 616 GWh / year of energy produced for 812 GWh / year of energy consumed.\r\n\r\nThe project works will span approximately 48 months. STEP’s total construction cost estimate is DH 2 300 million.","developer":"Office National de l'Electricite (ONE)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":369,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":30.675233,"longitude":-9.1995104,"master\_project\_id":null,"name":"Abdelmoumen Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Office National de l'Electricite (ONE)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Projected Cycle Efficiency: 75.86%","primary\_reference":"http://www.afdb.org/fileadmin/uploads/afdb/Documents/Environmental-and-Social-Assessments/EESS-Renouvelable%20et%20PERG-Resume\_English.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":350000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Agadir-Ida Ou Tanane","status":"Announced","street\_address":"Abdelmoumen Dam","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:00:22Z","updated\_at\_by\_admin":"2013-06-13T19:38:04Z","updated\_by":null,"updated\_by\_email":null,"utility":"Office National de l'Electricite (ONE)","utility\_type":"Federally Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Mountain View","commissioning\_on":"2022-02-01","companion":"","construction\_on":"2022-07-01","contact\_city":"Mountain View","contact\_country":"United States","contact\_email":"peter.dempster@bmw.de, simon.ellgas@bmw.de","contact\_info\_visible":false,"contact\_name":"Peter Dempster, Simon Ellgas","contact\_phone":"6502831651","contact\_state":"California","contact\_street\_address":"2606 Bayshore Parkway","contact\_zip":"94043","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-06-18T23:49:05Z","created\_by\_id":116,"debt\_investor":"","decommissioning\_on":null,"desc":"BMW of North America has installed a Battery Storage system at its Technology Office in Mountain View. It consists of a 100 kW inverter and 8 used battery packs from former MINI E EVs, once driving on California roads. A total of 240kWh lithium iron phosphate battery housed in a shipping container. The system is used for multiple use cases, e.g. Demand Response programs, Peak Demand Shaving, and Photovoltaic Energy Storage, and Uninterruptable Power Supply for power outages. The system is fully integrated into an advanced building energy management system, and is connected to a 100 kW solar array as well as a network of EV charging stations, including several DC fast charging stations.","developer":"BMW Group","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Privately funded","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"BMW Group","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":370,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/370/BMW-BatterySystem-1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/370/thumb\_BMW-BatterySystem-1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/370/partner\_BMW-BatterySystem-1.jpg"}},"integrator\_company":"BMW Group","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.425832,"longitude":-122.097974,"master\_project\_id":null,"name":"Peak Shaving Battery at BMW Technology - BMW Group","om\_contractor":"Princeton Power Systems","organization":"BMW Group, BMW Group","owner\_1":"BMW of North America","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://bmwgroup.com","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Grid-Connected Residential (Reliability)","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"Renewables Energy Time Shift","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":2.33333333333333,"size\_kwh\_hours":2,"size\_kwh\_minutes":20.0,"state":"California","status":"Operational","street\_address":"2606 Bayshore Parkway","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-18T00:59:27Z","updated\_at\_by\_admin":"2016-01-11T19:28:44Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"Investor Owned","vendor\_company":"EV Grid ","zip":"94043"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Hayward","commissioning\_on":"2022-05-28","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"dhorner@chabotcollege.edu","contact\_info\_visible":false,"contact\_name":"Doug Horner","contact\_phone":"510-723-7631","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-06-19T20:34:29Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This project was undertaken by the Chabot-Los Positas Community College District (CLPCCD) to resolve several campus-wide issues including spiraling energy costs and demand charges, aging and deteriorating mechanical systems, the need for a central plant with centralized and industrial grade equipment, and the need to achieve a more sustainable campus focused on energy and CO2 reduction. \r\n\r\nSouthland Industries (SI) provided design-build services, acted as prime contractor and self-performed 81% of the work for a $37M energy upgrade consisting of two new energy efficient thermal ice storage plants with chilled and hot water underground loop piping for the Chabot and Las Positas Community College campuses. This was a large and complex project with the added challenge of working on active college campuses in buildings that were over 40 years old and significant underground utility work without building drawings. Each site used used new high efficiency hot water boilers, high efficiency chillers, CALMAC ice storage tanks and cooling towers located in a new central plant yard. The project included installation of 60,000 lineal feet of underground mains, new IT conduit feeds updating phone and data systems, and natural gas and domestic water to all buildings. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":732110.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Pacific Gas and Electric - PG&E Customized Energy Efficiency/Demand Response Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":371,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/371/Chabot\_Plant\_4.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/371/thumb\_Chabot\_Plant\_4.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/371/partner\_Chabot\_Plant\_4.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.6396128,"longitude":-122.1026487,"master\_project\_id":null,"name":"CLPCCD - Utility Infrastructure Project","om\_contractor":"","organization":"Chabot-Los Positas Community College District (CLPCCD)","owner\_1":"Chabot-Los Positas Community College District (CLPCCD)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.calmac.com/energy-storage-case-study-chabot-las-positas-leed","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":890,"size\_kwh":4.66666666666667,"size\_kwh\_hours":4,"size\_kwh\_minutes":40.0,"state":"California","status":"Operational","street\_address":"25555 Hesperian Blvd","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-18T06:24:19Z","updated\_at\_by\_admin":"2016-03-17T22:55:56Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"CALMAC","zip":"94545"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Pak Chong","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-12-01","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"Electricity Generating Authority of Thailand (EGAT)","contact\_phone":"66 (0) 2436 4887","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Electric Power Development Co., Ltd.","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Thailand","created\_at":"2013-06-20T00:08:29Z","created\_by\_id":1,"debt\_investor":"Japan International Cooperation Agency (JICA)","decommissioning\_on":null,"desc":"The pumped storage project was initially proposed in 1975. The project was to be constructed in two 500 MW phases. The first phase began in December 1995 and was completed in 2001, with the first two 250 MW generators operational in August 2002. \r\n\r\nPhase two has recently (9/24/14) begun with Voith being awarded the contract for two 255 MW pump turbines.\r\n\r\nType: Rockfill dam \r\nHeight: 50 meters \r\nCrest Length: 2,170 meters \r\nReservoir’s storage capacity: 10.3 million cubic meters \r\nMaximum reservoir water level: +660 meters (MSL)","developer":"","electronics\_provider":"Siemens, ABB","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":373,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/373/plant-lamtakhong-a.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/373/thumb\_plant-lamtakhong-a.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/373/partner\_plant-lamtakhong-a.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":14.8361163,"longitude":101.5500819,"master\_project\_id":null,"name":"Lam Ta Khong Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Electricity Generating Authority of Thailand","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual generation: 400 GWh","primary\_reference":"http://en.wikipedia.org/wiki/Lam\_Takhong\_Dam","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":500000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Nakhon Ratchasima","status":"Operational","street\_address":"Lam Takhong Dam","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-09-24T17:20:44Z","updated\_at\_by\_admin":"2014-09-24T17:20:44Z","updated\_by":null,"updated\_by\_email":null,"utility":"Metropolitan Electricity Authority","utility\_type":"Public Owned","vendor\_company":"Alstom, Voith","zip":"30130"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Yecheon-gun","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ssg319@khnp.co.kr ","contact\_info\_visible":false,"contact\_name":"Korea Hydro and Nuclear Power (PR Media Dept.)","contact\_phone":"+82 02-3456-2132","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Doosan","contractor\_2":"Daelim Group","contractor\_3":"Emerson Process Management","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2013-06-20T03:54:42Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Yecheon PSPP utilizes two 400 MW reversible pump-turbines to store water for the purpose of generating electricity during peak demand hours. ","developer":"Korea Hydro & Nuclear Power (KHNP)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":375,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/375/yecheon.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/375/thumb\_yecheon.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/375/partner\_yecheon.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":36.6577004,"longitude":128.4528808,"master\_project\_id":null,"name":"Yecheon Pumped Storage Power Plant","om\_contractor":"Korea Hydro & Nuclear Power (KHNP)","organization":null,"owner\_1":"Korea Electric Power Corporation (KEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://khnp.yoon114.com/eng/pumped-storage-plants/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":800000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Gyeongsangbuk-do","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:00:10Z","updated\_at\_by\_admin":"2013-07-31T20:07:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Investor Owned","vendor\_company":"Doosan, Alstom","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Yangyang","commissioning\_on":"2022-09-12","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ssg319@khnp.co.kr","contact\_info\_visible":false,"contact\_name":"Korea Hydro and Nuclear Power (PR Media Dept.)","contact\_phone":"+82 02-3456-2132","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1140000000.0,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2013-06-20T04:29:19Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"During low electricity demand periods, such as the night time, water from the lower reservoir is pumped 937 m (3,074 ft) above the valley to the upper reservoir in the mountains. The upper reservoir is created by the Inje Dam, located 5.3 km2 (2 sq mi) west of the Yangyang Dam at 38°01′08″N 128°29′47″E. The Inje is a 84 m (276 ft) tall and 415 m (1,362 ft) long rock-fill embankment dam. The capacity of the upper reservoir is 4,200,000 m3 (3,405 acre·ft) and it has a surface area of 190 m2 (0 acre). When electricity demand rises and the power plant begins to operate, water is released from the upper reservoir back towards the underground power plant, at the western edge of the lower reservoir. Water fluctuations in the upper reservoir range from 900 m (2,953 ft) and 936 m (3,071 ft) above sea level. The power plant contains four 250 MW reversible Francis turbine-generators for an installed capacity of 1,000 MW. The drop in elevation affords a maximum hydraulic head (drop) of 817 m (2,680 ft) and effective head of 776 m (2,546 ft).\r\n\r\nAdditionally, there are 2 x 1.5 MW Wind turbines installed at the upper reservoir and a 1.5 MW small hydro turbine on the Yangsang Dam.","developer":"Korea Midland Power Co. (KOMIPO)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":377,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/377/yangyang.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/377/thumb\_yangyang.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/377/partner\_yangyang.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.015499,"longitude":128.55169,"master\_project\_id":null,"name":"Yangyang Pumped Storage Power Plant","om\_contractor":"Korea Hydro & Nuclear Power (KHNP)","organization":null,"owner\_1":"Korea Electric Power Corporation (KEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.hydroworld.com/articles/2006/09/korea-dedicates-1000-mw-yangyang-pumped-storage.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1000000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Gangwon","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T23:00:03Z","updated\_at\_by\_admin":"2014-07-31T00:09:57Z","updated\_by":null,"updated\_by\_email":null,"utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Investor Owned","vendor\_company":"Doosan, Alstom","zip":""}},{"project":{"announcement\_on":"2022-06-18","approval\_status":1,"city":"Moraine","commissioning\_on":"2022-09-30","companion":"Grid","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"praveen.kathpal@aes.com","contact\_info\_visible":false,"contact\_name":"Praveen H. Kathpal","contact\_phone":"(703) 682-6690","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":20000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-06-20T05:07:12Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"AES has installed an additional 40 MW (+20/-20) of advanced energy storage resources to PJM Interconnection, which controls the power grid for 60 million people in the Northeast and Midwest regions of the United States. To be located at Dayton Power and Light’s (DP&L) Tait generating station, just south of Dayton, Ohio, the AES battery array will provide frequency regulation service to the PJM market and bring new energy technology to Ohio that is safe, reliable, does not bear direct emissions and does not require water. This facility is the first of its kind in the state. ","developer":"AES Energy Storage","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":378,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/378/tait.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/378/thumb\_tait.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/378/partner\_tait.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.7256182,"longitude":-84.2113632,"master\_project\_id":null,"name":"AES Tait Battery Array","om\_contractor":"","organization":"","owner\_1":"AES ES Tait","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.aesenergystorage.com/2013/09/30/aes-reaches-more-than-100-mw-of-grid-scale-storage-in-the-u-s-with-40-mw-resource-in-ohio/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":20000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Ohio","status":"Operational","street\_address":"2101 Arbor Blvd","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-26T05:05:11Z","updated\_at\_by\_admin":"2014-08-07T21:32:10Z","updated\_by":null,"updated\_by\_email":null,"utility":"Dayton Power & Light","utility\_type":"Investor Owned","vendor\_company":"AES Energy Storage","zip":"45439"}},{"project":{"announcement\_on":"2022-12-01","approval\_status":1,"city":"Hemsby","commissioning\_on":"2022-05-19","companion":"","construction\_on":"2022-11-01","contact\_city":"","contact\_country":"","contact\_email":"innovation@ukpowernetworks.co.uk","contact\_info\_visible":false,"contact\_name":"Li-Wen Yip","contact\_phone":"li-wen.yip@ukpowernetworks.co.uk","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2013-06-20T05:25:23Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-01-01","desc":"An electricity distribution company has commissioned the first of a new type of dynamic power-control system with energy storage at a site north of Hemsby in Norfolk, so that energy from a nearby wind farm can be fed into the local grid.\r\n\r\nThe ABB DynaPeaQ installation will alter the energy profile and regulate the power flow to compensate for the intermittence of wind power.\r\n\r\nThe system is based on ABB’s established SVC Light system for reactive power compensation, and also includes eight stacks of 13 Saft lithium-ion battery modules housed in a 25m2 building. The modules will be continually charged and discharged, and can store up to 200kWh of electrical energy.","developer":"","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":379,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/379/Dynamic\_Energy\_Storage\_System\_-\_UKPN.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/379/thumb\_Dynamic\_Energy\_Storage\_System\_-\_UKPN.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/379/partner\_Dynamic\_Energy\_Storage\_System\_-\_UKPN.JPG"}},"integrator\_company":"ABB","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":52.695889,"longitude":1.684487,"master\_project\_id":null,"name":"ABB & UK Power Networks Hemsby Energy Storage Installation","om\_contractor":"","organization":"UK Power","owner\_1":"UK Power Networks","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://innovation.ukpowernetworks.co.uk/innovation/en/Projects/tier-1-projects/demonstrating-the-benefits-of-short-term-discharge-energy-storage/Project-Documents/Overview+-+Demonstration+of+Energy+Storage+Hemsby+-+Oct+2014.pdf","primary\_reference1":"","projected\_lifetime":"4.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Distribution upgrade due to wind","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":200,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Norfolk","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-04T06:05:47Z","updated\_at\_by\_admin":"2017-10-23T19:09:45Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"EDF Energy","utility\_type":"","vendor\_company":"Saft","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Asago","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-06-20T06:05:00Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Okutataragi Pumped Storage Power Station is a large pumped-storage hydroelectric power station in Asago, in the Hyōgo Prefecture of Japan. With a total installed capacity of a 1,932 MW, it is one of the largest pumped-storage power stations in the world, and the largest in Japan. \r\n\r\nConstruction on the facility began in 1970 and was completed in 1974. The first of six pump-generating turbines was commissioned in June 1974, the last in June 1998.","developer":"Kansai Electric Power Company (KEPCO)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":382,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/382/okutataragi.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/382/thumb\_okutataragi.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/382/partner\_okutataragi.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":35.3396654,"longitude":134.8531501,"master\_project\_id":null,"name":"Okutataragi Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Kansai Electric Power Company (KEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Maximum Water Consumption: 594m3 / s","primary\_reference":"http://www1.kepco.co.jp/himeji/jigyousyo/den/toyoden/okutataragi.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1932000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Hyōgo","status":"Operational","street\_address":"Kurokawa Reservoir","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:59:56Z","updated\_at\_by\_admin":"2013-11-25T22:53:47Z","updated\_by":null,"updated\_by\_email":null,"utility":"Kansai Electric Power Company (KEPCO)","utility\_type":"Investor Owned","vendor\_company":"Hitachi","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Osaka","commissioning\_on":"2022-02-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"efavreau@sei-device.com","contact\_info\_visible":false,"contact\_name":"Effie Favreau","contact\_phone":"603.929.7313","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-06-23T23:33:18Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Installed in 2000, the Vanadium redox flow battery energy storage system at Sumitomo's Densetsu Office is used for peak shaving. It is comprised of sixty 50 kW Sumitomo battery modules. ","developer":"Sumitomo Electric Industries, Ltd.","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":383,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.6937378,"longitude":135.5021651,"master\_project\_id":null,"name":"Sumitomo Densetsu Office","om\_contractor":"","organization":"","owner\_1":"Sumitomo Densetsu Co., Ltd.","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.electrochem.org/dl/interface/fal/fal10/fal10\_p049-053.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":3000,"size\_kwh":0.266666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":16.0,"state":"Kansai","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-28T17:30:43Z","updated\_at\_by\_admin":"2013-06-23T23:49:19Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"Sumitomo Electric Industries, Ltd.","zip":"550-8550"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Yokohama","commissioning\_on":"2022-07-24","companion":"Concentrated photovoltaic units","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"045-853-7182","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Sumitomo Densetsu Co., Ltd.","contractor\_2":"Meidensha Corporation","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-06-23T23:52:55Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Sumitomo Electric Industries, Ltd. has completed a megawatt-class electric power generation/storage system on the premises of its Yokohama Works. \r\n\r\nThe system consists of 28 units of concentrated photovoltaic (maximum total power generation: 200 kW)\* and a redox flow battery (capacity: 1 MW x 5 hours), which respectively function as renewable energy sources and a storage facility of electric power generated by the CPV units. Connected to external commercial power networks, the system can also store electricity provided by power companies during the night. This system employs an energy management system (EMS), which monitors the amount of CPV-generated electric power, battery storage and power consumption, and stores the measurement data in the central server.","developer":"Sumitomo Electric Industries, Ltd.","electronics\_provider":"Nissin Electric Co., Ltd.","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":384,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/384/prs069\_2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/384/thumb\_prs069\_2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/384/partner\_prs069\_2.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.3746549,"longitude":139.5276411,"master\_project\_id":null,"name":"Yokohama Works Energy Storage System - Sumitomo Electric Industries, Ltd.","om\_contractor":"","organization":"Yokohama Works","owner\_1":"Sumitomo Electric Industries, Ltd.","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://global-sei.com/news/press/12/prs069\_s.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Kanagawa","status":"Operational","street\_address":"1, Taya-cho, Sakae-ku","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-16T06:01:18Z","updated\_at\_by\_admin":"2014-06-26T19:27:16Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Sumitomo Electric Industries, Ltd.","zip":"244-8588"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Rokkasho","commissioning\_on":"2022-05-01","companion":"51 MW Wind Farm (1.5 MW x 34 Wind Turbines)","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"hatta@ngk.co.jp","contact\_info\_visible":false,"contact\_name":"Tetsuya Hatta (Engineering Manager)","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Kandenko Company","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-06-24T00:25:53Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In May 2008, JWD completed construction of a wind farm near Rokkasho village in Aomori Prefecture, in northern Honshu. This smart grid wind farm is the first facility of its type to use sodium sulfur (NAS) batteries to store electricity for supply to the national power grid. These batteries are charged at night, when the demand for power is lower, and the stored electricity can be supplied to the grid together with the electricity generated by the windmills during the daylight hours. This ensures a steady supply of power to the grid even during those periods when power production falls as the result of low wind speed. \r\n\r\nTo control the transmission of power from the Rokkasho wind farm to the national power grid, Tokyo Densan, a Yokogawa representative and systems integrator, successfully installed STARDOM network-based controllers and FA-M3 range-free controllers.\r\n\r\nhttps://www.ngk.co.jp/nas/case\_studies/rokkasho/\r\n\r\nhttp://www.yokogawa.com/iab/suc/power/iab-suc-jwd-en.htm","developer":"Japan Wind Development Co.","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":385,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/385/385\_futamata.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/385/thumb\_385\_futamata.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/385/partner\_385\_futamata.jpg"}},"integrator\_company":"Yokogowa Electric Corporation","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":40.9673439,"longitude":141.3745522,"master\_project\_id":null,"name":"Rokkasho Village Wind Farm - Futamata Wind Development","om\_contractor":"","organization":"","owner\_1":"Futamata Wind Development Co.","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Estimated to be 89% to 92%","primary\_reference":"http://www.cleanenergyactionproject.com/CleanEnergyActionProject/CS.Rokkasho-Futamata\_Wind\_Farm\_\_\_Energy\_Storage\_Case\_Study.html","primary\_reference1":"https://www.ngk.co.jp/nas/case\_studies/rokkasho/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":34000,"size\_kwh":7.0,"size\_kwh\_hours":7,"size\_kwh\_minutes":0.0,"state":"Aomori","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-25T23:09:13Z","updated\_at\_by\_admin":"2016-04-15T23:40:38Z","updated\_by":null,"updated\_by\_email":null,"utility":"Tohoku Electric Power Company","utility\_type":"","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Los Alamos","commissioning\_on":"2022-09-17","companion":"Solar Photovoltaic (PV)","construction\_on":null,"contact\_city":" Santa Clara","contact\_country":"United States","contact\_email":"aya.iwasuji@nedosv.org","contact\_info\_visible":true,"contact\_name":"Aya Iwasuji","contact\_phone":"1-408-567-8033","contact\_state":"California","contact\_street\_address":"3945 Freedom Circle, Suite 790","contact\_zip":"95054","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-06-25T21:40:35Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Los Alamos site is the world’s most advanced smart grid demonstration site for supply and demand control. Photovoltaic systems provide a significant portion of the power supply and account for up to 75% of the energy at the Los Alamos site. Because the output of photovoltaic systems vary with weather conditions, large-scale stationary batteries (sodium sulfur battery and lead acid battery) and demand response will be used to control the power flow of the distribution system and ensure quality.","developer":"","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":387,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/387/NEDO\_NaS\_Los\_Alamos\_Project.PNG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/387/thumb\_NEDO\_NaS\_Los\_Alamos\_Project.PNG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/387/partner\_NEDO\_NaS\_Los\_Alamos\_Project.PNG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"SPP","latitude":35.8783147,"longitude":-106.3185697,"master\_project\_id":null,"name":"Japan-US Collaborative Smart Grid Project","om\_contractor":"","organization":"New Energy and Industrial Technology Development Organization (NEDO)","owner\_1":"New Energy and Industrial Technology Development Organization (NEDO)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Operating as expected","primary\_reference":"http://www.nedo.go.jp/content/100503811.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"Ramping ","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"New Mexico","status":"Operational","street\_address":"3701 East Jemez Rd.","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-16T05:57:25Z","updated\_at\_by\_admin":"2014-11-07T21:34:40Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Los Alamos Dept of Public Utilities (DPU)","utility\_type":"Public Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":"2022-06-25","approval\_status":1,"city":"Minami Daito","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-06-25T23:02:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"A project subsidized by Japan's New Energy and Industrial Technology Development Organization, a 122kWh battery system is combined with two 245 kW wind turbines and a diesel-powered generator owned by the Okinawa Electric Power Co., Inc. at the remote island of Minami Daito. GIGACELL, a nickel-metal hydride battery developed by Kawasaki Heavy Industries, Ltd. is utilized in the battery system. A demonstration test is being conducted to control frequency regulation. The GIGACELL will also serve as a backup power souce during the diesel generator's 15-minute start-up time in the case of a sudden cut-off in wind power generation.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":388,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":25.846401,"longitude":131.244907,"master\_project\_id":null,"name":"Minami Daito Island Frequency Regulation","om\_contractor":"","organization":"N/A","owner\_1":"Okinawa Electric Power Company","owner\_2":"Kawasaki Heavy Industries, Ltd.","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.khi.co.jp/english/gigacell/index.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":300,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Okinawa","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Nickel Metal Hydride Battery","technology\_type\_l1":"Nickel Metal Hydride Battery","technology\_type\_l2":"Nickel based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-08T04:41:46Z","updated\_at\_by\_admin":"2014-10-26T23:26:15Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Okinawa Electric Power Company","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-06-25","approval\_status":1,"city":"Los Alamos","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"smartcommunity@ml.nedo.go.jp","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-06-25T23:19:17Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"As an example of Hitachi’s power system stabilization solutions including energy storage systems being deployed overseas, the New Energy and Industrial Technology Development Organization (NEDO) has commissioned a Demonstration Project in Los Alamos County, New Mexico, USA, which includes a lead acid battery system comprised of lead acid batteries (LL1500-W model which is produced by Shin-Kobe Electric Machinery Co., Ltd.), a 500-kVA PCS for storage batteries. The PCS is a hybrid type that includes two circuits of DC/DC converters that can be connected to storage batteries and photovoltaic cells.\r\n\r\nThis demonstration project involves the construction of a system that is interconnected with the distribution line, and is engaging in a demonstration study into the effectiveness of suppressing short-term output fluctuations in photovoltaic power generation through the charging and discharging of lead-acid batteries.\r\n","developer":"","electronics\_provider":"Hitachi","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":389,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/389/NEDO\_Lead\_Acid\_Pic.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/389/thumb\_NEDO\_Lead\_Acid\_Pic.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/389/partner\_NEDO\_Lead\_Acid\_Pic.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.8880796,"longitude":-106.3069722,"master\_project\_id":null,"name":"NEDO New Mexico Smart Grid Demonstration Project","om\_contractor":"","organization":"New Energy and Industrial Technology Development Organization (NEDO)","owner\_1":"New Energy and Industrial Technology Development Organization (NEDO)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.hitachi.com/New/cnews/120918.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":800,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"New Mexico","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T07:26:02Z","updated\_at\_by\_admin":"2015-10-26T17:53:27Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Hitachi, Shin-Kobe Electric Machinery Co.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Vaujany","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2013-06-27T01:04:18Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Grand’Maison \"high head\" dam is located upstream of the Romanche valley. It uses 8 pump turbines to drive water back up to the upper pondage in order to store it for use during periods of high demand.\r\n\r\nThe power station has a total output of 1820MW (12 turbine sets each producing 150MW). Its annual production of 1,420GWh (Gigawatt hours) accounts for 8% of France’s hydro-electric power. The total amount of power required for pumping is 1,720 (i.e. an overall loss of 300GWh or 30%). The rate of flow is of little importance at this mountain site, what matters is the 950 metre drop.","developer":"Électricité de France (EDF)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":390,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":45.205931,"longitude":6.117151,"master\_project\_id":null,"name":"Grand'Maison Dam Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Électricité de France (EDF)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Generation: 1420 GWh; Approximate Round Trip Efficiency: 70%","primary\_reference":"http://www.planete-tp.com/en/upstream-of-the-romanche-valley-a235.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1820000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Isère","status":"Operational","street\_address":"Barrage de Grand'Maison","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-10-27T17:00:09Z","updated\_at\_by\_admin":"2014-10-27T17:00:09Z","updated\_by":null,"updated\_by\_email":null,"utility":"Électricité de France (EDF)","utility\_type":"Investor Owned","vendor\_company":"Alstom","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Anji County","commissioning\_on":"2021-12-25","companion":"","construction\_on":"2022-03-01","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Elin","contractor\_2":"Hydrochina International Engineering Co. Ltd.","contractor\_3":"Sino Hydro","cost\_CAPEX":1080000000.0,"cost\_OPEX":null,"country":"China","created\_at":"2013-06-27T01:57:36Z","created\_by\_id":1,"debt\_investor":"World Bank","decommissioning\_on":null,"desc":"East China Electric Power's Tianhuangping pumped storage hydroelectric project is the biggest of its type in Asia. It provides valuable cover for demand surges in the central coastal region, including high growth Shanghai. It is located in Anji County in Zhejiang, about 175km from Shanghai, and has a total installed capacity of 1,800MW.\r\n\r\nThe new plant plays a vital role in stabilising the entire East China Power Grid, improving the quality of the power supply in east China, and ensuring the safe operation of the nuclear power stations in the surrounding areas.","developer":"","electronics\_provider":"Peebles Electric Limited, Geokon Instruments","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":391,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/391/figas.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/391/thumb\_figas.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/391/partner\_figas.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":30.638675,"longitude":119.680353,"master\_project\_id":null,"name":"Tianhuangping Pumped Storage Hydro Plant","om\_contractor":"","organization":null,"owner\_1":"East China Electric Power","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Cycle Efficiency ≈ 73%; Annual generated energy 3014 million kWh and annual consumed energy for pumping 4104 million kWh.","primary\_reference":"http://www.power-technology.com/projects/tianhuangping/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1836000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Zhejiang","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:59:43Z","updated\_at\_by\_admin":"2013-12-15T16:55:31Z","updated\_by":null,"updated\_by\_email":null,"utility":"East China Electric Power","utility\_type":"Federally Owned","vendor\_company":"Kværner, GE Hydro","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Sun Moon Lake","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"u062911@taipower.com.tw","contact\_info\_visible":false,"contact\_name":"Shiun-Der Yang","contact\_phone":"+886-2-2366-6852","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Sinotech","contractor\_2":"TEMES, Inc.","contractor\_3":"RSEA Engineering Corporation","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Taiwan","created\_at":"2013-06-27T02:36:47Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Mingtan Pumped Storage Hydro Power Plant was completed in 1994 as an important facility to control peak hours’ electricity demand in Taiwan. It has two reservoirs, one is the existing lake Sun Moon Lake as an upper reservoir and the other is Shui Li reservoir formed by building a dam as a lower reservoir.","developer":"Taiwan Power Company","electronics\_provider":"Voith, A-J","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":392,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/392/Taiwan\_Power\_Ccopany\_Mingtan\_Power\_Station.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/392/thumb\_Taiwan\_Power\_Ccopany\_Mingtan\_Power\_Station.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/392/partner\_Taiwan\_Power\_Ccopany\_Mingtan\_Power\_Station.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":23.8666667,"longitude":120.9166667,"master\_project\_id":null,"name":"Mingtan Dam","om\_contractor":"","organization":null,"owner\_1":"Taiwan Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.ieahydro.org/reports/Annex\_VIII\_CaseStudy0506\_Mingtan\_Taiwan.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1600000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Nantou","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-10-27T17:02:14Z","updated\_at\_by\_admin":"2014-10-27T17:02:14Z","updated\_by":null,"updated\_by\_email":null,"utility":"Taiwan Power Company","utility\_type":"Federally Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Trois-Ponts","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"gdfsuezpress@gdfsuez.com","contact\_info\_visible":false,"contact\_name":"GDF Suez","contact\_phone":"+33 (0)1 44 22 24 35","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Coyne et Bellier","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Belgium","created\_at":"2013-06-27T03:31:12Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This plant near Ambleve utilizes two upper basins on Mont de Brume and a lower reservoir built on the Coo giving an effective heed of about 275m. The four first-phase units use one upper reservoir and a second phase was added when the second upper basin was built.\r\n\r\nBegun in 1967, the development is planned in two phases. The first was completed in 1971-1972 by commissioning three turbogenerator (Coo 1) with a total capacity of 474 MW. The work of the second, including the installation of three additional groups increased power - 690 MW - completed in 1979 (Coo 2).","developer":"","electronics\_provider":"Allis Chalmers, Cockerill, Alstom","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":396,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/396/800px-CooInferieur-30jan2010.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/396/thumb\_800px-CooInferieur-30jan2010.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/396/partner\_800px-CooInferieur-30jan2010.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":50.3717154,"longitude":5.8703455,"master\_project\_id":null,"name":"Coo-Trois-Ponts Hydroelectric Power Station","om\_contractor":"","organization":null,"owner\_1":"Electrabel","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Generation: 1,600 GWh; Cycle Efficiency: 75%","primary\_reference":"https://www.electrabel.com/assets/be/corporate/documents/12018\_Coo\_Folder\_FR\_LR.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1164000,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Liege","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-10-27T17:06:57Z","updated\_at\_by\_admin":"2014-10-27T17:06:57Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Voith, Siemens","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Edolo","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-06-29T21:36:42Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This plant started its activity in 1985 and is located in Val Camonica on the right bank of the river Oglio in Brescia Province, Lombardy, North Italy.\r\n\r\nThe plant utilizes eight Francis pump-turbines each rated at 125 MW when generating and 140 MW when pumping. The upper reservoir rests 1,265.6 meters higher than the lower reservoir.\r\n","developer":"Enel","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":397,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/397/edolo.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/397/thumb\_edolo.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/397/partner\_edolo.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":46.1804266,"longitude":10.3298933,"master\_project\_id":null,"name":"Edolo Pumped Storage Plant","om\_contractor":"","organization":null,"owner\_1":"Enel","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The plant generates 737 GWh annually but consumes 1,021 GWh pumping; Approximate cycle efficiency: 72%","primary\_reference":"http://www.enel.it/it-IT/impianti/mappa/dettaglio/edolo-bs-/p/090027d98192f858","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1000000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Brescia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:59:22Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Enel","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Entracque","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"","contact\_email":"gerardo.orsini@enel.com","contact\_info\_visible":false,"contact\_name":"Gerardo Orsini","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-06-29T21:59:21Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Entracque Power Plant, also known as The Upper Gesso Plant, is a pumped-storage hydroelectric power station located in Valle Gesso just south of Entracque, Italy. The power station contains pump-generators for two co-located but hydraulically separated power schemes; the Chiotas-Piastra Plant and Rovina-Piastra Plant. Both plants use separate upper reservoirs but use Lago della Piastra as their common lower reservoir. To produce power, water is released from the upper reservoirs to the power station located at the lower reservoir. The pump-generators re-fill the reservoirs and the process repeats as needed. The Chiotas' upper reservoir, Lago del Chiotas, is located much higher in the valley and larger than Rovina's Lago della Rovina which affords it the ability to produce more electricity. The installed capacity of Chiotas is 1,184 MW with a hydraulic head (water drop in elevation) of 1,048 m (3,438 ft) while Rovina has an installed capacity of 133.67 MW and a head of 598 m (1,962 ft). Construction on the plant began in 1962 and operations started in 1982. 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Its capacity of 1,060 MW makes it the largest hydroelectric power plant in Germany and one of the largest in Europe. Construction costs amounted to about € 623 million.\r\n\r\nA special feature of Goldisthal is the first variable speed pumped storage unit in Europe. Two of the four pump-turbines operate at variable (asynchronous) and two constant (synchronous) speed. Such combined machine sets that are flexible and continuously adapt their performance both in turbine operation in power generation and in pumping mode of energy supply to the requirements and thus can be operated with the optimum efficiency were previously taken only in operation in Japan.\r\n\r\nHydraulic head: 301 m\r\nReservoir capacity: 12,000,000 m3 Water discharge: 100 m3/s per unit, 4 Units 265 MW each","developer":"Vereinigte Energiewerke AG","electronics\_provider":"Alstom Energietechnik, VA Tech Elin, VEM Sachsenwerk Dresden, Andritz VA Tech Hydro","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":399,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/399/Goldisthal.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/399/thumb\_Goldisthal.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/399/partner\_Goldisthal.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":50.5,"longitude":11.1666667,"master\_project\_id":null,"name":"Goldisthal Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Vattenfall","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.hydroworld.com/articles/print/volume-15/issue-1/articles/goldisthal-pumped-storage-plant-more-than-power-production.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Black Start","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1060000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Thuringia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:59:10Z","updated\_at\_by\_admin":"2013-07-09T19:59:01Z","updated\_by":null,"updated\_by\_email":null,"utility":"Vattenfall","utility\_type":"Federally Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Nikkō","commissioning\_on":"2022-07-01","companion":"","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"","contact\_email":"info@wash.tepco.com","contact\_info\_visible":false,"contact\_name":"TEPCO Washington Office","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-06-29T23:25:53Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Imaichi dam serves as the lower reservoir for the 1,050 MW Imaichi Pumped Storage Power Station, while the Kuriyama Dam forms the upper. Its reservoir can store 9,100,000 m3 (7,377 acre·ft) of water. Of that storage volume, 6,200,000 m3 (5,026 acre·ft) can be used for power generation. The power plant operates using the pump-storage hydroelectric method. During periods of high electricity demand, water is sent from the upper Kuriyama Reservoir to the power plant which contains 3 x 350 MW Francis pump turbines. Water discharged from the power plant then enters the Imaichi Reservoir. When demand is low, the pump-generators reverse mode and pump water from the lower reservoir back up to the upper.\r\n\r\nHead = 524 meters\r\n","developer":"TEPCO","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":400,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/400/Imaichi.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/400/thumb\_Imaichi.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/400/partner\_Imaichi.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":36.7199026,"longitude":139.6982161,"master\_project\_id":null,"name":"Imaichi Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Tokyo Electric Power Company (TEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.suiryoku.com/gallery/tochigi/imaichi/imaichi.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"Black Start","service\_use\_case\_5":"Frequency Regulation","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1050000,"size\_kwh":7.16666666666667,"size\_kwh\_hours":7,"size\_kwh\_minutes":10.0,"state":"Tochigi","status":"Operational","street\_address":"Togawa River","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:59:05Z","updated\_at\_by\_admin":"2013-07-29T01:32:41Z","updated\_by":null,"updated\_by\_email":null,"utility":"TEPCO","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Kölnbrein Dam","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-08-01","contact\_city":"","contact\_country":"Austria","contact\_email":"robert.zechner@verbund.com","contact\_info\_visible":false,"contact\_name":"Robert Zechner","contact\_phone":"+43 (0)50313-38043","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Poyry Energy","contractor\_2":"HPC","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2013-06-30T00:02:50Z","created\_by\_id":1,"debt\_investor":"European Investment Bank ($202m)","decommissioning\_on":null,"desc":"Through the construction of the pumped storage power plant Reisseck II, VERBUND is not only investing in the expansion of renewable energies but - in connection with the existing power plants Malta and Reisseck - is also creating one of Europe's most efficient hydropower plant groups in Carinthia's Möll Valley.\r\n\r\nThe high Alpine project area for the pumped storage power plant Reisseck II is located in Mühldorfer Graben at a height of up to 2,300 metres (m) where the Great Mühldorfer Lake will later function as an upper basin. The cavern power plant Reisseck II will be erected 1,585 m above sea level in the mountain and equipped with two powerful pump turbines.\r\n\r\nSimilar to a normal storage power plant, Reisseck II will produce peak electricity in high demand periods, whereby water will be transported via a works water channel from Great Mühldorfer Lake to the two turbines that drive the generators. The processed water will run into a lower basin.\r\n\r\nBoth of the machines units in the mountain can be switched to pump operation, whereby the generators will then function as motors and the turbines will pump the water from the lower basin back up to the upper basin. Pump operation will take place during the day when the European grid is carrying more electricity than is required by the consumers. Energy which, for example, comes from the large wind farms or the Danube power plants can be saved in the form of pumped-up water. The pumped storage power plant Reisseck II will therefore function as a \"green battery\" in the Alps. The power plant will have a capacity of 430 megawatt (MW), both in turbine and pump operation. This corresponds to the electricity generating capacity of approximately 200 wind turbines.\r\n\r\nOn completion of the rock cavern for the power plant in 2011, the boring of the works water channel to Great Mühldorfer Lake commenced in the first half of 2012 with an 880-ton (t) and 220 m tunnel boring machine. The assembly work on Austria's largest power plant construction site commenced in summer 2012. 300 experts are currently working on this high Alpine site. The newest VERBUND pumped storage power plant Reisseck II will be commissioned in 2014. The total investment volume amounts to € 385 million.\r\n\r\nA 200-ton transformer works its way up to Reisseck power plant\r\n\r\nIn the project Reisseck II, assembly work is going full speed ahead. Of all power plant components, the block transformer with a tare weight of 200 tons is the heaviest single component.\r\n\r\nThe transformer was delivered to Spittal on the river Drau by rail. Several tractive units harnessed in front of the transformer heaved it from the Mölltal valley to the power plant cavern, located 1000 meters higher – a logistic challenge!\r\n\r\nhttp://www.power-technology.com/projects/reisseck-ii-pumped-storage-power-plant-carinthia/?goback=%2Egmp\_3698324%2Egde\_3698324\_member\_5812132009241239554#%21","developer":"VERBUND Hydro Power AG","electronics\_provider":"Andritz","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":401,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/401/78453E54369A479486133B91D2078BFB.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/401/thumb\_78453E54369A479486133B91D2078BFB.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/401/partner\_78453E54369A479486133B91D2078BFB.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":47.0791667,"longitude":13.3391667,"master\_project\_id":null,"name":"Reisseck II Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"VERBUND Hydro Power AG","owner\_2":"KELAG, ENERGIE AG","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://en.wikipedia.org/wiki/Malta-Reisseck\_Power\_Plant\_Group#Reisseck-Kreuzeck\_power\_plants","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":430000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Carynthia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:58:59Z","updated\_at\_by\_admin":"2013-12-01T18:54:14Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Markersbach","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"thomas1. beyer@vattenfall.de","contact\_info\_visible":false,"contact\_name":"Thomas Beyer","contact\_phone":"(49)36733-28.3322","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"CKD Blansko","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-06-30T00:30:17Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Markersbach Pumped Storage Power Plant is a hydroelectric power station utilizing pumped-storage technology in Markersbach, Germany. Planning for the power plant began in 1961, construction began in 1970 and the generators were commissioned in 1979. The power station generates electricity by moving water between an upper and lower reservoir. During periods of low energy demand, water is pumped from the lower reservoir at an elevation of 563 m (1,847 ft) to an upper reservoir at 850 m (2,789 ft). When energy demand is high, the water is released back down towards the lower reservoir and fed through six 175 MW reversible Francis pump turbines, the same machines that pumped the water to the upper reservoir.\r\n\r\nHydraulic head: 288 m\r\nReservoir Capacity: 6,300,000 m3\r\nWater discharge: 70 m3/s per Unit, 6 Units 175 MW each","developer":"","electronics\_provider":"CKD Blansko, Skoda","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":402,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/402/Markersbach\_22.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/402/thumb\_Markersbach\_22.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/402/partner\_Markersbach\_22.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":50.53528,"longitude":12.8641046,"master\_project\_id":null,"name":"Markersbach Pumped Storage Power Plant","om\_contractor":"Alstom (synchronous generators upgrade Oct. 16, 2015)","organization":null,"owner\_1":"Vattenfall","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Annual Generation: 980 GWh","primary\_reference":"http://powerplants.vattenfall.com/markersbach","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1050000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Saxony","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2015-11-12T23:20:33Z","updated\_at\_by\_admin":"2015-11-12T23:20:33Z","updated\_by":null,"updated\_by\_email":null,"utility":"Vattenfall","utility\_type":"Federally Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Kōfu, Hino District","commissioning\_on":"2022-04-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Fujita","contractor\_2":"Maeda","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-06-30T01:40:40Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Matanogawa Pumped Storage Power station, or Matano River Power Plant, generates electricity by using about 500m drop from the upper pond in the Okayama prefecture Shinjo village to the lower reservoir in the Tottori Prefecture Kofu-cho. ","developer":"","electronics\_provider":"Hitachi","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":410,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/410/matanoagawa.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/410/thumb\_matanoagawa.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/410/partner\_matanoagawa.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":35.265767,"longitude":133.508911,"master\_project\_id":null,"name":"Matanogawa Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Chugoku Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.energia.co.jp/tori/space/matano.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1200000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Tottori","status":"Operational","street\_address":"Matano","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:58:47Z","updated\_at\_by\_admin":"2013-07-25T00:12:16Z","updated\_by":null,"updated\_by\_email":null,"utility":"Chugoku Electric Power Co.","utility\_type":"Investor Owned","vendor\_company":"","zip":"1990-1"}},{"project":{"announcement\_on":"2022-07-29","approval\_status":1,"city":"Leighton Buzzard","commissioning\_on":"2021-12-12","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United Kingdom","contact\_email":"nick.heyward@ukpowernetworks.co.uk","contact\_info\_visible":false,"contact\_name":"Nick Heyward","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2013-07-08T08:00:46Z","created\_by\_id":73,"debt\_investor":"","decommissioning\_on":null,"desc":"The Smarter Network Storage (SNS) project aims to carry out a range of technical and commercial innovation to tackle the challenges associated with the low-carbon transition and facilitate the economic adoption of storage. It is differentiated from other LCNF electrical storage projects by its demonstration of storage across multiple parts of the electricity system, outside the boundaries of the distribution network. By demonstrating this multi-purpose application of 6 MW / 10 MWh of energy storage at Leighton Buzzard primary substation, the project will explore the capabilities and value in alternative revenue streams for storage, whilst deferring traditional network\r\nreinforcement.\r\n\r\nThe project aims to provide the industry with a greater understanding and a detailed assessment of the business case and full economics of energy storage, helping to accommodate increasing levels of intermittent and inflexible low carbon generation. The £18.7 million project was awarded funding of £13.2 million by Ofgem, under the Low Carbon Network Fund (LCNF) scheme in December 2012 and will last four years, from January 2013 to December 2016.\r\n\r\nhttp://smartestenergy.com/power-purchase/ukpn/\r\n\r\nhttp://innovation.ukpowernetworks.co.uk/innovation/en/Projects/tier-2-projects/Smarter-Network-Storage-(SNS)/Project-Documents/SNS+UKPN+Report+9.8+05Jan.pdf","developer":"","electronics\_provider":"S&C Electric Europe","energy\_management\_software\_provider":"","funding\_amount\_1":22362912.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Debt","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Office of Gas and Electricity Markets","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":411,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/411/Visualisation.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/411/thumb\_Visualisation.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/411/partner\_Visualisation.jpg"}},"integrator\_company":"Younicos","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.9174658,"longitude":-0.6510187,"master\_project\_id":null,"name":"Smarter Network Storage","om\_contractor":"","organization":"","owner\_1":"UK Power Networks","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://innovation.ukpowernetworks.co.uk/innovation/en/press-releases/press-releases/smarter-storage-network-trial-helps-shape-views-on-energy-storage.html","primary\_reference1":"http://innovation.ukpowernetworks.co.uk/innovation/en/Projects/tier-2-projects/Smarter-Network-Storage-(SNS)/","projected\_lifetime":"4.0","rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":6000,"size\_kwh":1.66666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":40.0,"state":"Bedfordshire","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-21T20:04:44Z","updated\_at\_by\_admin":"2016-04-26T20:06:21Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"UK Power Networks","utility\_type":"Investor Owned","vendor\_company":"Samsung SDI","zip":"LU7 3NU"}},{"project":{"announcement\_on":"2022-05-10","approval\_status":1,"city":"North Kohala","commissioning\_on":"2022-05-10","companion":"","construction\_on":"2022-04-08","contact\_city":"Oakland","contact\_country":"United States","contact\_email":"fred.brown@gen-xenergydevelopment.com","contact\_info\_visible":false,"contact\_name":"M. Fred Brown","contact\_phone":"510-410-4917","contact\_state":"CA","contact\_street\_address":"831 Longridge Road","contact\_zip":"94610","contractor\_1":"Site Constructors, Inc.","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1794000.0,"cost\_OPEX":6.0,"country":"United States","created\_at":"2013-07-08T21:00:34Z","created\_by\_id":118,"debt\_investor":"","decommissioning\_on":null,"desc":"Off-grid 100kW wind powered commercial scale water pumping system utilizing a grid forming 100kW 4-quadrant 3-phase inverter, 100kW lithium titanate battery bank, variable frequency drive and PCL based supervisory controls to operate a 50hp submersible pump. This completely off-grid system is capable of producing over 30 million gallons of water per year. Can also utilize solar as a source of renewable energy.","developer":"Gen-X Energy Development LLC","electronics\_provider":"Sustainable Power Systems LLC","energy\_management\_software\_provider":"","funding\_amount\_1":538200.0,"funding\_amount\_2":448500.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Tax Credit","funding\_source\_2":"State/Provincial/Regional Tax Credit","funding\_source\_3":"","funding\_source\_details\_1":"Treasury Grant 1603 - Investment Tax Credit","funding\_source\_details\_2":"State of Hawaii Incentive - Investment Tax Credit","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":412,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/412/IMG\_0406.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/412/thumb\_IMG\_0406.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/412/partner\_IMG\_0406.JPG"}},"integrator\_company":"Gen-X Energy Development LLC","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":20.2388832,"longitude":-155.8050118,"master\_project\_id":null,"name":"SkyGrid Energy - Gen-X Energy Development LLC","om\_contractor":"Site Constructors, Inc.","organization":"Gen-X Energy Development LLC","owner\_1":"Kohala Makani Wai LLC","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"200,000kW & >30 million gallons of water per year","primary\_reference":"http://www.sustainablepowersystems.com/wp-content/uploads/2016/05/KMW-Project-Profile.pdf","primary\_reference1":"http://www.northernpower.com/wind-turbine-powers-off-grid-farm/","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"System Design","research\_institution":"Sustainable Power Systems","research\_institution\_link":"","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Distribution upgrade due to wind","service\_use\_case\_3":"Electric Bill Management with Renewables","service\_use\_case\_4":"Electric Supply Capacity","service\_use\_case\_5":"Microgrid Capability","service\_use\_case\_6":"On-Site Power","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Hawaii","status":"Operational","street\_address":"Pratt & Lokahi Road","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-18T06:55:42Z","updated\_at\_by\_admin":"2014-08-12T19:10:40Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Hawaiian Electric Company","utility\_type":"","vendor\_company":"Altair Nanotechnologies Inc.","zip":"96753"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Toronto","commissioning\_on":"2022-02-01","companion":"","construction\_on":"2022-11-01","contact\_city":"Toronto","contact\_country":"Canada","contact\_email":"info@ecamion.com","contact\_info\_visible":true,"contact\_name":"Carmine Pizzurro","contact\_phone":" 416-755-6460","contact\_state":"Ontario","contact\_street\_address":"450 Midwest Rd","contact\_zip":"M1P 3A9","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2013-07-10T21:01:02Z","created\_by\_id":120,"debt\_investor":"","decommissioning\_on":null,"desc":"A consortium led by eCAMION Inc. with Toronto Hydro, the University of Toronto, and Dow Kokam LLC has unveiled the first energy storage system installed directly into an urban community. \r\nLocated at the Roding Arena and Community Centre in North York, this community energy storage (CES) system will allow Toronto Hydro to monitor this technology, and help validate its benefits to Toronto’s electrical grid.\r\nThe project is funded by the project consortium and Sustainable Development Technology Canada (SDTC).\r\nFacts\r\n1. This unit will provide 250 kWh/500kW of storage and is very compact; it only requires a small pad mount, a bit larger than a normal Toronto Hydro transformer.\r\n2. Fully charged the CES system could provide electricity to a typical community centre, a light industrial complex or small residential street.\r\n3. Each consortium partner plays a key role in this project: Toronto Hydro provides the local distribution system, connection and opportunity to modernize an aging grid. eCAMION is the project lead and has designed and integrated the storage system to include thermal management communications and control. Dow Kokam LLC has developed the Advanced Energy Lithium-Polymer NMC (nickel manganese cobalt) cells and cell chemistry. The University of Toronto is managing the CPPM (control, protection and power management) technology and building algorithms that will integrate the ‘brains’ of the system.","developer":"eCAMION","electronics\_provider":"IE Power (Eaton Corporation)","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":414,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/414/IMG\_1043.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/414/thumb\_IMG\_1043.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/414/partner\_IMG\_1043.JPG"}},"integrator\_company":"eCAMION","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":43.7306345,"longitude":-79.4927209,"master\_project\_id":null,"name":"Toronto Hydro CES Project - eCAMION ","om\_contractor":"","organization":"eCAMION","owner\_1":"Toronto Hydro Electrical System Ltd.","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"250kWh/500kW","primary\_reference":"http://www.ecamion.com/portfolio/ces/","primary\_reference1":"http://www.newswire.ca/news-releases/toronto-hydro-introduces-the-first-urban-community-energy-storage-project-511881051.html","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"Intelligent Controls","research\_institution":"University of Toronto","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"Grid-Connected Residential (Reliability)","service\_use\_case\_5":"Microgrid Capability","service\_use\_case\_6":"Renewables Capacity Firming","service\_use\_case\_7":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_8":"Voltage Support","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":500,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Ontario","status":"Operational","street\_address":"Roding Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-31T06:33:51Z","updated\_at\_by\_admin":"2017-10-23T23:40:19Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Toronto Hydro","utility\_type":"Public Owned","vendor\_company":"Dow Kokam","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Navagam","commissioning\_on":"2022-06-20","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ceel-ssnnl@gujarat.gov.in ","contact\_info\_visible":false,"contact\_name":"Shri U C Jain, Chief Engineer (E&M) S.S.N.N.L.","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Centarl Electricity Authority","contractor\_2":"Central Water Commission","contractor\_3":"Jaiprakash Associates Ltd","cost\_CAPEX":null,"cost\_OPEX":null,"country":"India","created\_at":"2013-07-11T03:52:44Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The dam's main power plant houses six 200 MW Francis pump-turbines to generate electricity and afford a pumped-storage capability. Additionally, a power plant on the intake for the main canal contains five 50 MW Kaplan turbine-generators. The total installed capacity of the power facilities is 1,450 MW.\r\n\r\nThe power would be shared by three states - Madhya Pradesh - 57%, Maharashtra - 27% and Gujarat 16%. This will provide a useful peaking power to western grid of the country which has very limited hydro power production at present.","developer":"","electronics\_provider":"Hitachi, Siemens, Sumitomo, BHEL","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":415,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/415/sardar\_sarovar.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/415/thumb\_sardar\_sarovar.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/415/partner\_sardar\_sarovar.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":22.7997334,"longitude":72.5781545,"master\_project\_id":null,"name":"Sardar Sarovar Pumped Storage Power Station","om\_contractor":"Sardar Sarovar Narmada Nigam LTD.","organization":null,"owner\_1":"Narmada Control Authority","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Generation: 1,000 GWh","primary\_reference":"http://www.sardarsarovardam.org/Client/Index.aspx","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1450000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Gujarat","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:58:42Z","updated\_at\_by\_admin":"2014-08-12T21:24:34Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Sumitomo Electric Industries, Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Kazeya","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"yoonhae@hyosung.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Hazama Corporation","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-07-15T05:56:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Okuyoshino Pumped Storage Power Station is located 15 km (9 mi) north of Totsukawa in Nara Prefecture, Japan. Six 201 MW Francis pump-turbine-generators are reversible and serve to both pump water and generate electricity.\r\n\r\nThe Oku-yoshino Power Plant was planned as a peaking plant to meet augmented electricity demand. The plant plays an important role for improving the grid efficiency and\r\nreliability with thermal power plants and nuclear power plants.\r\n\r\nThe plant had a lot of technical features. One was that the gross head, 530 m was almost highest at that time in Japan. Each unit of\r\nthe plant was equipped with larger capacity and higher rotation speed. It was also the first plant in Japan at which the static starter\r\nwas installed.\r\n\r\nEffective head: 505.0 m\r\nMax. discharge: 288.0 m3/s\r\nGross storage capacity: 15,470,000 m3\r\nEffective Storage Capacity: 12,630,000 m3\r\n\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":417,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/417/okuyoshino.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/417/thumb\_okuyoshino.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/417/partner\_okuyoshino.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.04469,"longitude":135.787958,"master\_project\_id":null,"name":"Okuyoshino Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"Kansai Electric Power Company (KEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.ieahydro.org/reports/Asahi-Dam.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1206000,"size\_kwh":12.1833333333333,"size\_kwh\_hours":12,"size\_kwh\_minutes":11.0,"state":"Nara","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:58:37Z","updated\_at\_by\_admin":"2014-07-03T22:39:13Z","updated\_by":null,"updated\_by\_email":null,"utility":"Kansai Electric Power Company (KEPCO)","utility\_type":"","vendor\_company":"Toshiba","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Kralendijk","commissioning\_on":"2022-08-01","companion":"Wind-diesel Power Plant","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jim.mcdowall@saftbatteries.com","contact\_info\_visible":false,"contact\_name":"Jim McDowall","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Netherlands","created\_at":"2013-07-15T18:19:17Z","created\_by\_id":122,"debt\_investor":"","decommissioning\_on":null,"desc":"Bonaire (pop. 14,500), a small island off the coast of Venezuela, is famous for its beautiful marine reefs, which are visited by 70,000 tourists every year. What many of the tourists don’t realize is that the majority of the electricity powering their needs comes from renewable energy. Yet for the residents of Bonaire, the switch from fossil-fueled to renewable energy systems has made a world of difference.\r\n\r\nLike many Caribbean islands, Bonaire originally relied on diesel fuel to generate electricity for residents, with a peak demand of 11 MW. This fuel had to be shipped in from other nations, resulting in high electricity prices for Bonaire residents, along with uncertainty about when and how much prices might increase with changing fuel costs.","developer":"EcoPower Bonaire BV","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":418,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/418/graphic\_bonaire.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/418/thumb\_graphic\_bonaire.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/418/partner\_graphic\_bonaire.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":12.1507,"longitude":-68.2767,"master\_project\_id":null,"name":"Bonaire Wind-Diesel Hybrid","om\_contractor":"","organization":"","owner\_1":"EcoPower Bonaire BV","owner\_2":"","owner\_type":"3","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The power management system and the battery have been performing above expectations. Power quality and grid stability are good.","primary\_reference":"http://reneweconomy.com.au/caribbean-island-says-goodbye-diesel-hello-100-renewable-electricity-49930/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":3000,"size\_kwh":0.0833333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":5.0,"state":"Bonaire","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Nickel-cadmium Battery","technology\_type\_l1":"Nickel-cadmium Battery","technology\_type\_l2":"Nickel based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-28T17:03:42Z","updated\_at\_by\_admin":"2014-07-12T01:39:27Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Water and Energy Company of Bonaire","utility\_type":"Federally Owned","vendor\_company":"Saft","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Numata","commissioning\_on":"2022-07-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"info@wash.tepco.com","contact\_info\_visible":false,"contact\_name":"TEPCO Washington Office","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-07-17T21:27:40Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Tamahara Powerplant is located 14 km (9 mi) north of Numata.\r\n\r\nPower is generated during periods of high energy demand and pumping occurs during times when energy demand is low such as at night. The power station contains four 300 MW reversible Francis turbine pump-generators which serve to both pump water and generate electricity.\r\n\r\nEffective hydraulic head: 518 m","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":420,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/420/tamahara.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/420/thumb\_tamahara.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/420/partner\_tamahara.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":36.6460769,"longitude":139.0441608,"master\_project\_id":null,"name":"Tamahara Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Tokyo Electric Power Company (TEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.suiryoku.com/gallery/gunma/tanbara/tanbara.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1200000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Gunma Prefecture","status":"Operational","street\_address":"Tamahara Dam","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:58:30Z","updated\_at\_by\_admin":"2013-07-17T21:54:34Z","updated\_by":null,"updated\_by\_email":null,"utility":"TEPCO","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Sergiev Posad","commissioning\_on":"2022-11-05","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Russia","contact\_email":"AhmedzhanovTG@rushydro.ru","contact\_info\_visible":false,"contact\_name":"Timur Akhmedzhanov","contact\_phone":"7 (800) 333 8000 ext. 1607","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Russia","created\_at":"2013-07-17T21:48:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The decision to build the country's first hydroelectric power plant in the town of Sergiev Posad district was adopted in 1974. The first two reversible pumped storage hydro Zagorskaya were put into operation in December, 1987. The last of the six reversible pump turbines were commissioned in 2000.\r\n\r\nZagorsk-2 with a future installed capacity of 840 MW is currently being constructed adjacent to it.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":421,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/421/Zagorskaya\_PSP.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/421/thumb\_Zagorskaya\_PSP.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/421/partner\_Zagorskaya\_PSP.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":56.3094531,"longitude":38.1301289,"master\_project\_id":null,"name":"Zagorsk PSP-1","om\_contractor":"","organization":null,"owner\_1":"RusHydro","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Project annual generation : 1,932,000,000 kWh","primary\_reference":"http://www.zagaes.rushydro.ru/pshpp/general","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1200000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Moscow Oblast","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:58:24Z","updated\_at\_by\_admin":"2013-11-20T18:14:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Sergiev Posad","commissioning\_on":null,"companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"Russia","contact\_email":"AhmedzhanovTG@rushydro.ru","contact\_info\_visible":false,"contact\_name":"Timur Akhmedzhanov","contact\_phone":"7 (800) 333 8000 ext. 1607","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Russia","created\_at":"2013-07-17T21:57:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The new power plant will be built near the currently functioning Zagorsk PSP-1, its installed capacity will be 840 MW.","developer":"RusHydro","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":422,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/422/1386173752789.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/422/thumb\_1386173752789.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/422/partner\_1386173752789.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":56.3094531,"longitude":38.1301289,"master\_project\_id":null,"name":"Zagorsk PSP-2","om\_contractor":"","organization":null,"owner\_1":"RusHydro","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Project annual generation - 1,100,000,000 kWh","primary\_reference":"http://en.skmost.ru/objects/gidro/zagorskaya/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":840000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Moscow Oblast","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:58:19Z","updated\_at\_by\_admin":"2013-12-05T19:11:35Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Vianden","commissioning\_on":"2022-04-17","companion":"","construction\_on":"2022-08-01","contact\_city":"","contact\_country":"","contact\_email":"seo@seo.lu","contact\_info\_visible":false,"contact\_name":"SEO","contact\_phone":"+352 44902-1","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Lahmeyer International","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Luxembourg","created\_at":"2013-07-17T22:22:59Z","created\_by\_id":1,"debt\_investor":"The European Investment Bank, the Bank for Reconstruction","decommissioning\_on":null,"desc":"The Vianden Pumped Storage Plant is located just north of Vianden near the German border on the Our River. The power plant uses nine 100 MW Francis reversible pump-turbine-generators commissioned 1962-1964 and one 196 MW Francis reversible pump-turbine-generator commissioned in 1976. \r\n\r\nConstruction on an eleventh pump-generator began in 2010 and it is expected to be commissioned in 2013, which will bring the plant's installed capacity to 1,296 MW.\r\n","developer":"","electronics\_provider":"Alstom, Escher Wyss, Siemens, Voith","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":423,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/423/vianden.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/423/thumb\_vianden.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/423/partner\_vianden.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":49.9341924,"longitude":6.2019917,"master\_project\_id":null,"name":"Vianden Pumped Storage Plant","om\_contractor":"SEO","organization":null,"owner\_1":"State of Luxembourg","owner\_2":"RWE","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":40.3,"ownership\_percentage\_2":40.3,"performance":"Annual Generation: 1650 GWh","primary\_reference":"http://www.seo.lu/de/Hauptaktivitaeten/PSW-Vianden/Vorstellung","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1096000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Diekrich","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:58:13Z","updated\_at\_by\_admin":"2013-08-28T21:07:04Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Maccagno","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"gerardo.orsini@enel.com","contact\_info\_visible":false,"contact\_name":"Gerardo Orsini, Media Relations","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-07-18T01:57:00Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Roncovalgrande Hydroelectric Plant, also known as the Delio Hydroelectric Plant, is located 3 km (2 mi) north of Maccagno in the Province of Varese, Lombardy, Italy.\r\n\r\nAt the power plant, eight four-stage Pelton turbine-generators generate electricity. Power generation occurs during periods of high energy demand and when energy demand is low, pumping usually occur. The pumps are on the same shaft as the Pelton turbines and send water from the lower to the upper reservoir to serve as stored energy. In the future, this water is sent back down to the power station and the process repeats. The difference in elevation between the upper and lower reservoirs affords a hydraulic head of 736.25 m (2,416 ft) and Lago Delio has a usable storage capacity of 10,000,000 m3 (8,107 acre·ft).","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":424,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":46.0033754,"longitude":8.6875771,"master\_project\_id":null,"name":"Roncovalgrande (Lago Delio) Hydroelectric Plant","om\_contractor":"","organization":null,"owner\_1":"Enel","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Annual Generation: 983.48 GWh","primary\_reference":"http://www.enel.it/it-IT/impianti/mappa/dettaglio/roncovalgrande-maccagno/p/090027d98192f884","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1000000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Varese","status":"Operational","street\_address":"Lake Maggiore","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:58:08Z","updated\_at\_by\_admin":"2013-12-01T01:00:19Z","updated\_by":null,"updated\_by\_email":null,"utility":"Enel","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Presenzano","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"gerardo.orsini@enel.com","contact\_info\_visible":false,"contact\_name":"Gerardo Orsini, Media Relations","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-07-18T02:14:00Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Presenzano Hydroelectric Plant, officially known as the Domenico Cimarosa Hydroelectric Plant, is located along the Volturno River in Presenzano, Province of Caserta, Italy.\r\n\r\nPower is generated by releasing water from the upper Cesima reservoir down to the power plant which contains four reversible 250 MW Francis pump-turbine-generators. After power production, the water is sent to the lower reservoir. During periods of low energy demand, the same pump-generators pump water from the lower reservoir back to the upper where it becomes stored energy. The difference in elevation between both the upper and lower affords a hydraulic head of 495 m (1,624 ft).\r\n\r\nThe approximate cost for the construction of the plant is around 1,000 billion lire.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":425,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/425/presenzano.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/425/thumb\_presenzano.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/425/partner\_presenzano.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":41.3766245,"longitude":14.088517,"master\_project\_id":null,"name":"Domenico Cimarosa (Presenzano) Hydroelectric Plant","om\_contractor":"","organization":null,"owner\_1":"Enel","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Annual generation: 1276 GWh","primary\_reference":"http://www.enel.it/it-IT/impianti/mappa/dettaglio/domenico-cimarosa-presenzano-ce-/p/090027d98192f7d7","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply 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rock-fill dam — which at 176 m (577 ft) in height is the tallest of its type in Japan.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":426,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/426/1027AB06953P.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/426/thumb\_1027AB06953P.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/426/partner\_1027AB06953P.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":36.473841,"longitude":137.690061,"master\_project\_id":null,"name":"Shin-Takasegawa Pumped Storage 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Ltd.","contractor\_3":"Lahmeyer International, MWH, Norconsult ","cost\_CAPEX":904100000.0,"cost\_OPEX":null,"country":"China","created\_at":"2013-07-18T03:11:08Z","created\_by\_id":1,"debt\_investor":"The World Bank","decommissioning\_on":null,"desc":"The Tongbai project in Zhejiang Province was built to increase generating capacity and improve load regulating capability. The development uses an existing upper reservoir and involved construction of a new lower reservoir and an underground powerhouse. The powerhouse contains four 306-MW reversible pump-turbines at a net head of 244 meters. Two penstocks each supply two units. A tailrace tunnel leads from each unit to the lower reservoir. Each tailrace tunnel is equipped with an emergency gate.\r\n\r\nThe project was funded by Shenergy Co., Ltd. (20%), Shanghai Electric Power Co., Ltd. (17%), State Power East China Company (10%), Zhejiang Electric Power Company (25%), Zhejiang Electric Power Development Company (23%) and Tiantai Water & Electric Power Development Company (5%). ","developer":"Shenergy Co., Ltd., Shanghai Electric Power Co., Ltd., State Power East China Company, Zhejiang Electric Power Company, Zhejiang Electric Power Development Company, Tiantai Water & Electric Power Development Company","electronics\_provider":"Andritz VA Tech Hydro","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":427,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/427/tongbai.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/427/thumb\_tongbai.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/427/partner\_tongbai.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":30.274085,"longitude":120.15507,"master\_project\_id":null,"name":"Tongbai Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"Zhejiang Electric Power Company","owner\_2":"Zhejiang Electric Power Development Company","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":25.0,"ownership\_percentage\_2":23.0,"performance":"Performance metrics not available.","primary\_reference":"http://www.hydroworld.com/articles/print/volume-18/issue-1/Articles/pumped-storage/designing-pump-turbines-for-tongbai-in-china.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1224000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Zhejiang","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-10T17:46:17Z","updated\_at\_by\_admin":"2016-05-10T17:46:17Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Andritz VA Tech Hydro","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Taiyuan","commissioning\_on":"2022-10-16","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"cggc@cggcintl.com","contact\_info\_visible":false,"contact\_name":"China Gezhouba Group Corporation","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"China Gezhouba Group Corporation ","contractor\_2":"Shanghai CNSK Electric Group","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-07-18T04:16:33Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Xilongchi pumped storage power plant (output: 1,224 MW) in China started commercial operation. This plant, which takes advantage of a large difference in elevation of around 700 meters, was delivered as the first pumped storage power plant in China by a consortium of Japanese companies. Its main feature is that although it uses a high elevation drop and is designed for high output, it generates very little noise or vibration. Pumped storage power generation works by pumping water to a higher elevation during slack periods and using the stored water to generate electricity during high-demand periods. In this way it is able to match supply to demand, and this station is contributing to the stable supply of electricity to the Huabei region, including Beijing.","developer":"Pumped Storage Power Station Co., Ltd.","electronics\_provider":"Mitsubishi Electric Corporation, Hitachi, Toshiba, Geokon Instruments","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":434,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/434/xilongchi01.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/434/thumb\_xilongchi01.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/434/partner\_xilongchi01.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":37.87059,"longitude":112.548879,"master\_project\_id":null,"name":"Xilongchi Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Shanxi Xilongchi Pumped Storage Power Station Co., Ltd.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Generation: 1,850,000,000 kWh","primary\_reference":"http://www.power-hitachi.com/news/2004/20040903.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1200000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Shanxi","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:57:41Z","updated\_at\_by\_admin":"2013-11-29T23:55:15Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Mitsubishi Electric Corporation, Hitachi, Toshiba","zip":""}},{"project":{"announcement\_on":"2021-12-31","approval\_status":1,"city":"Columbus","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":"Gahanna","contact\_country":"United States","contact\_email":"psigo@aep.com","contact\_info\_visible":true,"contact\_name":"Paula Iago","contact\_phone":"614-883-7895","contact\_state":"Ohio","contact\_street\_address":"850 Tech Center Drive","contact\_zip":"43230-6605","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-07-23T17:21:04Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"AEP Ohio and its partners are building a secure, interoperable, and integrated Smart Grid infrastructure in Ohio that demonstrates the ability to maximize distribution system efficiency and reliability, and consumer use of demand response programs to reduce energy consumption, peak demand costs, and fossil fuel emissions. The demonstration area includes 150 square miles including parts of Columbus, Bexley, Gahanna, New Albany, Whitehall, Reynoldsburg, Westerville, Blacklick, Johnstown, Alexandria, Minerva Park, and Pataskala. This area includes approximately 110,000 meters and 70 distribution circuits. AEP Ohio will implement Smart Grid technology over 58 13kV circuits from 10 distribution stations and 12 34.5kV circuits from six distribution stations. Included in this project is a redistribution management system, integrated volt-VAR control, distribution automation, advanced meter infrastructure, home area networks, community energy storage, sodium sulfur battery storage, and renewable generation sources. These technologies will be combined with two-way consumer communication and information sharing, demand response, dynamic pricing, and consumer products, such as plug-in hybrid vehicles.\r\n\r\nThe plan was to integrate 80 CES (25kW/25kWh) units of storage resources into the existing grid. After initial testing, AEP Ohio began field installations and commissioned 15 CES units into operations by December 31, 2011. Following this deployment, technical issues were discovered and the CES units were not performing to AEP Ohio’s stringent standards. The CES units were removed from the field and returned to S&C. This component of the project has been redefined to include a limited deployment of four CES units at an outdoor test environment on AEP Ohio property to continue extensive testing. \r\n\r\nRead the final project report here:\r\nhttp://goo.gl/N6aDLp\r\n ","developer":"American Electric Power (AEP) Ohio","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":75000000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 - RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":436,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/436/aep.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/436/thumb\_aep.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/436/partner\_aep.png"}},"integrator\_company":"American Electric Power (AEP) Ohio","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.965144,"longitude":-83.005961,"master\_project\_id":null,"name":"Ohio gridSMART Demonstration Project - American Electric Power (AEP) Ohio","om\_contractor":"","organization":"American Electric Power (AEP) Ohio","owner\_1":"American Electric Power (AEP) Ohio","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"System roundtrip AC efficiency: >85% (AC efficiency has not yet been field-verified); PCS efficiency: ~95%","primary\_reference":"http://www.smartgrid.gov/project/aep\_ohio\_gridsmartsm\_demonstration\_project","primary\_reference1":"https://www.smartgrid.gov/files/OE0000193\_AEP\_FactSheet.pdf","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Transmission Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Ohio","status":"Operational","street\_address":"1 Riverside Plaza","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-18T21:21:55Z","updated\_at\_by\_admin":"2014-08-14T14:33:32Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"American Electric Power","utility\_type":"Investor Owned","vendor\_company":"","zip":"43215-2355"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Uniondale","commissioning\_on":"2022-02-05","companion":"","construction\_on":null,"contact\_city":"New York","contact\_country":"United States","contact\_email":"MMui@lipower.org","contact\_info\_visible":true,"contact\_name":"Ming Mui","contact\_phone":"516-719-9229","contact\_state":"New York","contact\_street\_address":"333 Earle Ovington Blvd Ste 403","contact\_zip":"11553-3606","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-07-23T20:27:20Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"Twelve sealed absorbed glass mat (AGM) lead acid batteries planned for demonstration of storage in the residential demonstration model at Farmingdale; 60 Amp, 720 W, 12 V. The Long Island Power Authority (LIPA) is teaming with Stony Brook University and Farmingdale State College to create a Smart Energy Corridor located along Route 110 in Melville, Farmingdale, and South Huntington, New York. \r\n\r\nThe demonstration project will integrate advanced metering infrastructure (AMI) technology with automated substation and distribution systems to reduce peak demand and energy costs while improving the ability to identify and respond to outages. AMI will be installed at 2,338 consumer locations, 1,488 will be residential. Data collectors will be installed along the Corridor to facilitate network communications. LIPA will install digital control and communications devices on 51 capacitor banks and will also install devices that automate monitoring and control of 18 overhead switches and 6 underground switches. \r\n\r\nA key aspect of this project is to evaluate the impact of a range of variables on customer behavior and consumption, including an alternative tariff structure, provision of varying levels of information and analytical tools, and outreach and energy automation for a sample of participating customers. Demonstration projects at the Farmingdale campus will include live residential and commercial models showing how intelligent devices can enable customers to understand and control their usage and integrate distributed renewable energy. Farmingdale will also provide training and education to students, technicians, and businesses as well as outreach to the community. Stony Brook University will investigate cyber security issues, research load forecasting and modeling techniques that leverage Smart Grid data, and develop tools to help customers better visualize and understand their energy usage. \r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":12496047.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Office of Electricity and Reliability – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":438,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/438/long\_island\_smart\_energy\_corridor.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/438/thumb\_long\_island\_smart\_energy\_corridor.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/438/partner\_long\_island\_smart\_energy\_corridor.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.7233004,"longitude":-73.5935824,"master\_project\_id":null,"name":"Long Island Power Authority Long Island Smart Energy Corridor","om\_contractor":"","organization":null,"owner\_1":"Long Island Power Authority","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.smartgrid.gov/project/long\_island\_power\_authority\_long\_island\_smart\_energy\_corridor","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":8,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"New York","status":"Operational","street\_address":"333 Earle Ovington Boulevard","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-09T21:41:18Z","updated\_at\_by\_admin":"2016-05-09T21:41:18Z","updated\_by":null,"updated\_by\_email":null,"utility":"Long Island Power Authority (LIPA)","utility\_type":"Public Owned","vendor\_company":"","zip":"11553-3606"}},{"project":{"announcement\_on":"2022-09-01","approval\_status":2,"city":"New York","commissioning\_on":null,"companion":"","construction\_on":"2022-07-01","contact\_city":"South Orange","contact\_country":"United States","contact\_email":"hfeibus@innoventivepower.com","contact\_info\_visible":true,"contact\_name":"Howard Feibus","contact\_phone":"(703)655-7105","contact\_state":"New Jersey","contact\_street\_address":"70 Duffield Dr., Ste. 305","contact\_zip":"07079","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":4200000.0,"cost\_OPEX":4200.0,"country":"United States","created\_at":"2013-07-23T20:53:19Z","created\_by\_id":117,"debt\_investor":"N/A","decommissioning\_on":null,"desc":"The purpose of this project is to demonstrate techniques to enhance the ability of conventional and renewable demand response resources to be integrated into the operations of an electric delivery company. Interoperability will be demonstrated by integrating the operations of a demand response service provider, a large multi-facility retail customer and an electric delivery company. Phase 1 of the project demonstrated the potential to achieve the project objectives. This is Phase 2, which includes design, procurement and installation of:equipment: (1) to modify the demand response command center to enable integration of the operations of multiple demand response resources; (2) to enable auto-response at multiple retail electric customer facilities from the demand response command center; (3) to evaluate the technical feasability of distributed generators at retail electric customer sites to operate in parallel with an electric distribution network and inject power into the network; (4) to reduce NOx emissions and demonstate the cost-effectiveness of clean distributed generation; and (5) demonstrate that an ice storage plant at a retail customer site will reduce energy costs while reducing energy consumption and greenhouse gas emissions. In addition this ice storage plant will demonstrate its ability to cost-effectively supply system regulation and support power system stability. \r\n\r\n10,000 cooling tons of ice.\r\n","developer":"Trane","electronics\_provider":"Innoventive Power","energy\_management\_software\_provider":null,"funding\_amount\_1":1550000.0,"funding\_amount\_2":2200000.0,"funding\_amount\_3":445000.0,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 - RD&D","funding\_source\_2":"Private/Third Party Equity","funding\_source\_3":"Private/Third Party Equity","funding\_source\_details\_1":"Department of Energy, National Energy Technology Lab","funding\_source\_details\_2":"Verizon","funding\_source\_details\_3":"Innoventive Power & Trane","gmaps":true,"hidden":false,"id":439,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/439/Picture1.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/439/thumb\_Picture1.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/439/partner\_Picture1.png"}},"integrator\_company":"Trane","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.7138275,"longitude":-74.0131657,"master\_project\_id":null,"name":"ConEdison Interoperability of Demand Response Resources: Thermal","om\_contractor":"","organization":null,"owner\_1":"Verizon","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://smartgrid.gov/project/consolidated\_edison\_company\_ny\_interoperability\_demand\_response\_resources\_demonstration\_ny/","primary\_reference1":null,"projected\_lifetime":"40.0","rdd\_status":"Yes","research\_desc":"Interoperability is being demonstrated by the ability to integrate the operation of a variety of conventional and renewable demand response resources into the existing distribution network. A goal of this project is to develop standards that will excite non-participating distributed resources to consider being engaged in this kind of program.","research\_institution":"National Energy Technology Laboratories","research\_institution\_link":"https://smartgrid.gov/project/consolidated\_edison\_company\_ny\_interoperability\_demand\_response\_resources\_demonstration\_ny","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":1000,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"New York","status":"Operational","street\_address":"140 West St.","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2014-08-14T22:14:58Z","updated\_at\_by\_admin":"2014-08-01T17:35:52Z","updated\_by":null,"updated\_by\_email":null,"utility":"Consolidated Edison Company of New York (Con Edison)","utility\_type":"Investor Owned","vendor\_company":"CALMAC","zip":"10003-3502"}},{"project":{"announcement\_on":"2022-07-23","approval\_status":2,"city":"Austin","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Austin","contact\_country":"United States","contact\_email":"bmccracken@pecanstreetproject.org","contact\_info\_visible":false,"contact\_name":"Brewster McCracken","contact\_phone":"512-782-9213","contact\_state":"Texas","contact\_street\_address":"3925 W Braker Lane","contact\_zip":"78759","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-07-23T21:32:55Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"Pecan Street Project is developing and implementing an Energy Internet at the 711-acre Robert Mueller mixed-use development in Austin, Texas. Smart Grid systems that form the foundation of this project include automated meter information, 2-way meters, energy control gateways (a home network system that links to a customer web portal), advanced billing software, and smart thermostats. These technologies will be integrated into a microgrid that links 1,000 residential meters, 75 commercial meters, and plug-in electric vehicles (PEV). At least 100 of the residential meters will have rooftop solar photovoltaics (PV), including 15 or more affordable residences. The project will also integrate 200 residences with smart water and smart irrigation systems. Different storage technologies will be tested including thermal storage, battery technologies (e.g., lithium-ion, lithium iron magnesium phosphate, metal air, and lead acid), and possibly ultracapacitors and fuel cell systems. Distributed generation technologies integrated into the Energy Internet include solar PV (crystalline silicon and thin film), solar water heaters, and absorption chillers. Through the use of Pecan Streets’ two-way energy flow, customers can set electricity and water budgets, have software manage electricity use of individual appliances, and sell energy back to the grid; cars connected to the grid can be powered with solar energy and help level loads; and utilities can store power and deliver it when needed, - See more at: http://www.smartgrid.gov/project/pecan\_street\_project\_inc\_energy\_internet\_demonstration#sthash.i2Mv4MKm.dpuf","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":10403570.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&D","funding\_source\_2":"","funding\_source\_3":null,"funding\_source\_details\_1":"Department of Energy - Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":null,"gmaps":true,"hidden":false,"id":440,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":null,"is\_sub\_project":null,"iso":"ERCOT","latitude":30.3952976,"longitude":-97.7352087,"master\_project\_id":null,"name":"Pecan Street Project Inc. Energy Internet Demonstration","om\_contractor":"","organization":null,"owner\_1":"Austin Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.smartgrid.gov/project/pecan\_street\_project\_inc\_energy\_internet\_demonstration","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":15,"size\_kwh":2.5,"size\_kwh\_hours":2,"size\_kwh\_minutes":30.0,"state":"Texas","status":"Operational","street\_address":"3925 W BRAKER LN STE 300","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2013-10-17T16:27:33Z","updated\_at\_by\_admin":"2013-10-17T16:21:00Z","updated\_by":null,"updated\_by\_email":null,"utility":"Austin Energy","utility\_type":"Public Owned","vendor\_company":"","zip":"78759-5371"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Gapyeong-gun ","commissioning\_on":"2022-11-01","companion":"","construction\_on":"2022-04-16","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2013-07-24T20:29:51Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"Cheongpyeong Pumped Storage Power Plant is the first hydroelectric plant built in South Korea. It is owned and operated by the Korea Southern Power Co., Ltd (KOSPO), subsidiary of the Korea Electric Power Corporation (KEPCO). It consists of two reversible turbines that can generate maximum 400 MW of electricity, and a massive underground facility. The power plant was built to quickly respond to failure of main power plants and to secure reserve sources of power. The turbines and generators are located 350 meters underground and the water flows from the upper reservoir to the lower reservoir that are separated by vertical distance of 480 meters. The existing Cheongpyeong lake is currently being used as the lower reservoir while the the Homyeong reservoir was constructed for use as the upper reservoir.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":441,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/441/cheongpyeong.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/441/thumb\_cheongpyeong.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/441/partner\_cheongpyeong.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.8315403,"longitude":127.5098827,"master\_project\_id":null,"name":"Cheongpyeong Pumped Hydro Power Plant","om\_contractor":"","organization":null,"owner\_1":"Korea Electric Power Corporation (KEPCO)","owner\_2":"Korea Hydro and Nuclear Power Co. Ltd.","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://khnp.yoon114.com/eng/pumped-storage-plants/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":400000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Gyeonggi-do","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:57:34Z","updated\_at\_by\_admin":"2014-08-06T19:19:56Z","updated\_by":null,"updated\_by\_email":null,"utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Milyang","commissioning\_on":"2022-11-01","companion":"","construction\_on":"2022-09-01","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2013-07-24T21:48:19Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"Following the construction of of the first pumped hydro power plant in Cheongpyeong, Samrangjin Pumped Hydro Power Plant is the second pumped hydro power plant in Korea with output power capacity exceeding Cheongpyeong by 200MW. Unlike Cheongpyeong, Samrangjin project built a lower reservoir named Chuntaechun by damming a tributary of Nakdong River. The rigorous construction resulted in 6,578 meters of tunnel inside the facility.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":442,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/442/samrangjin\_pumped\_hydro.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/442/thumb\_samrangjin\_pumped\_hydro.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/442/partner\_samrangjin\_pumped\_hydro.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.5037598,"longitude":128.7464415,"master\_project\_id":null,"name":"Samrangjin Pumped Hydro Power Plant","om\_contractor":"","organization":null,"owner\_1":"Korea Electric Power Corporation (KEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://khnp.yoon114.com/eng/pumped-storage-plants/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":600000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Gyeongsangnam-do","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:57:27Z","updated\_at\_by\_admin":"2014-08-06T19:18:56Z","updated\_by":null,"updated\_by\_email":null,"utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Toyone","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-11-01","contact\_city":"","contact\_country":"","contact\_email":"NA","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"J-Power","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-07-24T21:48:28Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Shintoyone pumped storage project was implemented utilizing the existing Sakuma Reservoir as its lower reservoir. Two 1,884m-long headrace tunnels connect water in the Shintoyone Reservoir to the underground powerhouse which was constructed adjacent to the Sakuma Reservoir without lowering the water level in the reservoir. The powerhouse has an installed capacity of 1,125MW\r\nwith a head of 203m. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":443,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/443/220px-Shintoyone-1229-r1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/443/thumb\_220px-Shintoyone-1229-r1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/443/partner\_220px-Shintoyone-1229-r1.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.1467376,"longitude":137.7196997,"master\_project\_id":null,"name":"Shin Toyone Pumped Storage","om\_contractor":"Electric Power Development Co., Ltd.(EPDC)","organization":null,"owner\_1":"Ministry of Land, Infrastructure, Transport and Tourism","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.jpower.co.jp/english/international/consultation/detail\_old/se\_as\_japan36.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1125000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Aichi","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-10T17:49:24Z","updated\_at\_by\_admin":"2016-05-10T17:49:24Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Siah Bisheh","commissioning\_on":"2022-01-01","companion":"Thermal Power Plants","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"info-siahbishe@iwpco.ir","contact\_info\_visible":false,"contact\_name":"Project Manager, Faramarz Akhavan","contact\_phone":"+98.21.26213693-4","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Traksionel, EDF Co., Moshanir Consulting Engineer, Lahmeyer International","contractor\_2":"Farab, Tabliyeh, Kayson, Beta, Mechanic khak, Electrowatt, Ekono","contractor\_3":"AF-Consult Switzerland Ltd, Colenco Power Engineering Ltd","cost\_CAPEX":380000000.0,"cost\_OPEX":null,"country":"Iran","created\_at":"2013-07-24T22:36:17Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Siah Bisheh Pumped Storage Power Plant, also spelled Siyāhbisheh and Siah Bishe, is located in the Alborz Mountain range near the village of Siah Bisheh and 48 km (30 mi) south of Chalus in Mazandaran Province, Iran. The power plant uses the pumped-storage hydroelectric method to generate electricity during periods of high energy demand, making it a peaking power plant, intended to fulfill peak electricity demand in Tehran 60 km (37 mi) to the south. When complete it will have an installed generating capacity of 1,040 MW and a pumping capacity of 940 MW. Planning for the project began in the 1970s and construction began in 1985. It was delayed from 1992 until 2001 and the first generator went online in May 2013 with an installed capacity of 260 MW. The remaining generators should be commissioned by the end of 2013.","developer":"","electronics\_provider":"Siemens","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":444,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/444/siah\_bishe.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/444/thumb\_siah\_bishe.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/444/partner\_siah\_bishe.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.2262393,"longitude":52.5318604,"master\_project\_id":null,"name":"Siah Bishe Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Iran Water & Power Resources Development Co.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://en.iwpco.ir/Siahbishe/default.aspx","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1040000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Mazandaran","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-10T17:51:41Z","updated\_at\_by\_admin":"2016-05-10T17:51:41Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Foit, Siemens, Fuji","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Shuili","commissioning\_on":"2022-08-01","companion":"Nuclear Power Plants","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Taiwan","created\_at":"2013-07-25T00:15:59Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Minghu Pumped Storage Powerplant is on the Shuili River located 7 km (4 mi) north of Shuili in Nantou County, Taiwan.\r\n\r\nDuring periods of low demand, such as at night, when electricity is cheap, water is pumped to Sun Moon Lake. When energy demand is high, water is released down to the power station for power generation. This is accomplished by four 252 MW Francis pump-turbine-generators which are reversible and serve to both pump water and generate electricity. The power plant has an installed capacity of 1,008 MW. Mingtan Dam, located downstream serves as the lower reservoir for another pump-storage project with an installed capacity of 1,602 MW.","developer":"","electronics\_provider":"Temes, Invensys","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":445,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":23.7919524,"longitude":120.8613785,"master\_project\_id":null,"name":"Minghu Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"Taiwan Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Efficiency: 74%; The load factor is improved from 0.82 to 0.88 due to the contribution of the four pumped hydro units; The Ming-Hu pumped hydro plant generates 3,893 MWh power during peak load hours and pumps up 5,250 MWh power during light load hours, resulting in a cost saving of NT$5.91 million in one day","primary\_reference":"http://cdn.intechopen.com/pdfs/6257/InTech-Particle\_swarm\_optimization\_for\_power\_dispatch\_with\_pumped\_hydro.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Load Following (Tertiary Balancing)","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1008000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Nantou","status":"Operational","street\_address":"Sun Moon Lake","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:55:45Z","updated\_at\_by\_admin":"2013-07-25T00:37:21Z","updated\_by":null,"updated\_by\_email":null,"utility":"Taiwan Power Company","utility\_type":"Federally Owned","vendor\_company":"Hitachi","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Tai'an","commissioning\_on":"2021-12-20","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Voith, China National General Machinery Engineering Corporation","contractor\_2":"Hydrochina International Engineering Co. Ltd., BGK","contractor\_3":"SEPCOIII Electric Power Construction Corporation","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-07-25T01:08:44Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Tai'an Pumped Storage Power Station has been built to service the Shangdong Power Grid in Northeast China.\r\n\r\nEstimated Cost: 4.326 billion yuan","developer":"","electronics\_provider":"Geokon Instruments","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":446,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/446/taian.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/446/thumb\_taian.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/446/partner\_taian.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":36.200252,"longitude":117.087614,"master\_project\_id":null,"name":"Tai'an Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Shangdong Electric Power Corporation","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Generation: 1,347,800 MWh","primary\_reference":"http://www.gov.cn/jrzg/2006-12/22/content\_476186.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"Load Following (Tertiary Balancing)","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1000000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Shandong","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:55:38Z","updated\_at\_by\_admin":"2013-11-29T23:51:19Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Voith","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Wuhu City","commissioning\_on":"2022-08-14","companion":"","construction\_on":"2021-12-08","contact\_city":"","contact\_country":"","contact\_email":"sales@hec-china.com","contact\_info\_visible":false,"contact\_name":"Harbin Electric Machinery Co.","contact\_phone":"+86-0451-82872091","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Shanghai Investigation, Design & Research Institute (SIDRI)","contractor\_2":"Harbin Electric Machinery Co., Ltd.","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-07-25T01:44:54Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The station lies in the border of Sanshan Region, in Wuhu City of Anhui Province, nearby the load center of East China Power Grid. Dynamic investment in the station amounts to 3.8 billion yuan. Its total installed capacity is 1000MW and designed annual energy output 1762GWh and annual corresponding energy consumed for pumping water 2274GWh.\r\n\r\nThe power station consists of upper reservoir, lower reservoir, water conveyance system, underground powerhouse and a ground substation etc. A dam creating the upper reservoir is a reinforced concrete facing rockfill one with the maximum height of 89.5m. The reservoir’s normal storage water level is 222m and a total storage capacity 17.48 million m3. The lower reservoir is formed by excavating lower-lying land in a valley and building a dam with the maximum height 21.5m. Its normal storage water level is 14.6m and total storage capacity 14.35 million m3.\r\n\r\nhttp://en.wikipedia.org/wiki/Jixi\_Pumped\_Storage\_Power\_Station","developer":"","electronics\_provider":"Prysmian China","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":447,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/447/xiang.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/447/thumb\_xiang.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/447/partner\_xiang.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":31.352859,"longitude":118.432941,"master\_project\_id":null,"name":"Xiangshuijian (响水涧抽水蓄能电站) Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"State Grid Xinyuan Co Ltd.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://en.sidri.com/ProjectsInfo.aspx?cid=6&nid=29","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_5":"Frequency Regulation","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1000000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Anhui","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:55:31Z","updated\_at\_by\_admin":"2013-11-25T21:21:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Harbin Electric Machinery Co., Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Yixing","commissioning\_on":"2022-12-01","companion":"","construction\_on":"2022-08-01","contact\_city":"","contact\_country":"","contact\_email":"crpinfo@crp.net.cn","contact\_info\_visible":false,"contact\_name":"CR Power","contact\_phone":"(852) 2593 7530","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Shanghai Investigation, Design & Research Institute (SIDRI)","contractor\_2":"China Gezhouba Group Corporation ","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-07-25T02:57:05Z","created\_by\_id":1,"debt\_investor":"World Bank","decommissioning\_on":null,"desc":"The Yixing Pumped Storage Project for China's development objective is to increase the overall efficiency of the power sector in Jiangsu Province in two ways: a) design and implementation of a restructuring of the power sector to further competition at the generation level and to provide large consumers access to generators, and b) construction of a pumped storage plant (4 x 250 MW) in Yixing to ease acute peaking problems and improve the generation mix that will create the conditions for more flexible dispatch and improved supply reliability an essential requirement for well-functioning competitive markets. The project components are: 1) construction of the Yinxing pumped storage power plant, a new upper reservoir, new main dam and subsidiary dam, and the underground powerhouse; 2) assistance to the restructuring of the power sector; and 3) construction of a double circuit transmission line to connect the Yixing pumped storage plant to the East China 500 KV network. \r\n\r\nStatic investment in the power station is 3.985 billion RMB yuan and dynamic investment 4.763 billion RMB yuan including the loan of US$ 145 million from the World Bank.","developer":"CR Power ","electronics\_provider":"ABB, Geokon Instruments","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":452,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/452/yixing01.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/452/thumb\_yixing01.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/452/partner\_yixing01.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":31.340711,"longitude":119.823166,"master\_project\_id":null,"name":"Yixing Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"CR Power ","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Overall Efficiency: 76%","primary\_reference":"http://en.sidri.com/ProjectsInfo.aspx?cid=6&nid=31","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Load Following (Tertiary Balancing)","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1000000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Jiangsu","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:55:24Z","updated\_at\_by\_admin":"2013-11-29T23:54:41Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Cheongsong-gun","commissioning\_on":"2022-09-01","companion":"","construction\_on":"2022-09-01","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2013-07-25T15:33:53Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"Korea Western Power Co, a power generation subsidiary of Korea Electric Power Company based in Seoul, began construction of a new 600 MW hydroelectric power project in Cheongsong, South Korea, in September 2000. The pumped storage project, located upstream on the Naktong river in the province of Kyongsangbukdo, approximately 314 km southeast of Seoul, will help to support the economic growth of this mountainous region near Juwang National Park that is home to approximately 34,000 people.\r\n\r\nCivil work for the US$304.8M scheme, financed by Korea Western Power, is being carried out by a consortium of Donga Construction Company and Samsung Engineering & Construction Company, both Korean companies. Hyundai Engineering is serving as project consultant. The facility is expected to begin generating electricity by the end of 2006.\r\n\r\nIn the first open, international competitive bidding for a hydro power project in South Korea, following the country's entry into the World Trade Organization, Korea Western Power awarded the contract for the project's equipment supply to GE-hydro in January 2002.\r\n\r\nGE will supply, install and commission two 300 MW reversible pump turbines, 333 MVA motor/generators, governors, exciters and balance of plant equipment. Pumping operations will be performed in off-peak periods using relatively low cost power from other generation sources. The motor/generators are each rated at 333/339.8 MVA at 18 kV, 0.9/0.95 power factor and 300 rpm. Output of the pump turbine is 306 MW at a net head of 307.9 m. Maximum pump output is 31 MW. Each unit has a specified allowable duration to change operational modes, from standstill, pump, generate, generate-condense and pump condense.\r\n\r\nGE Energy in Norway, part of GE Hydro, will provide the project management, conceptual design and turbine runners for the project. Generators will be designed and supplied through GE Canada and other sub-suppliers, while ABB Canada will supply the control equipment, static starters and exciters. Shipping of equipment for the project will begin in April 2004.\r\n\r\nThe plant will be connected to the local power grid via a new, 20 km, two-circuit transmission line connected to the 345 kV bus of the Shinyoungil substation.\r\n\r\nInteresting fact: The plant's two 300-MW pump-turbines are operated remotely from the 600-MW Samrangjin Pumped-Storage project 130 kilometers away. 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The pumped storage project is located upstream on the Deokcheon River in the province of Gyeongsangnam-do.\r\n\r\nCivil work for the US$559.5M scheme was carried out by a consortium of Sambu Construction Industrial Company and Doosan Heavy Industries and Construction Company, both Korean companies. Alstom S.A. and Doosan provided two 350MW reversible pump turbines. \r\n","developer":"","electronics\_provider":"Doosan, Alstom","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":454,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/454/sancheong\_pumped\_hydro.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/454/thumb\_sancheong\_pumped\_hydro.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/454/partner\_sancheong\_pumped\_hydro.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.4155885,"longitude":127.8734981,"master\_project\_id":null,"name":"Sancheong Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Korea Electric Power Company (KEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://khnp.yoon114.com/eng/pumped-storage-plants/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":700000,"size\_kwh":9.1,"size\_kwh\_hours":9,"size\_kwh\_minutes":6.0,"state":"Gyeongsangnam-do","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:55:12Z","updated\_at\_by\_admin":"2014-08-06T19:12:19Z","updated\_by":null,"updated\_by\_email":null,"utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Investor Owned","vendor\_company":"Doosan, Alstom","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Muju-gun","commissioning\_on":"2022-02-28","companion":"","construction\_on":"2022-05-01","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2013-07-25T20:31:10Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"KOREA Hydro and Nuclear Power Co, a power generation subsidiary of Korea Electric Power Company (KEPCO) began construction of a new 600MW hydroelectric power project in Muju-gun, South Korea, in May 1988 and the construction was complete in May of 1995. The pumped storage project is located upstream on the Gwemok Stream in the province of Jeollabuk-do. Muju plant is the third pumped-hydro power plant constructed in Korea to support rapidly developing economy of Korea. The location of Muju power plant is ideal to supply power to five surrounding states of South Korea. \r\n\r\nCivil work for the US$268.8M scheme was carried out by a consortium of Dongah Construction Industrial Company and Doosan Heavy Industries and Construction Company, both Korean companies. Alstom S.A. provided two 300MW reversible pump turbines. \r\n","developer":"","electronics\_provider":"Doosan, Alstom","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":455,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/455/muju\_pumped\_storage.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/455/thumb\_muju\_pumped\_storage.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/455/partner\_muju\_pumped\_storage.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.0068191,"longitude":127.6607805,"master\_project\_id":null,"name":"Muju pumped storage power plant","om\_contractor":"Korea Hydro and Nuclear Power Company","organization":null,"owner\_1":"Korea Electric Power Corporation (KEPCO)","owner\_2":"Korea Hydro and Nuclear Power Company","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://khnp.yoon114.com/eng/pumped-storage-plants/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":600000,"size\_kwh":7.33333333333333,"size\_kwh\_hours":7,"size\_kwh\_minutes":20.0,"state":"Jeollabuk-do","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:55:06Z","updated\_at\_by\_admin":"2014-08-06T19:20:35Z","updated\_by":null,"updated\_by\_email":null,"utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Investor Owned","vendor\_company":"Doosan, Alstom","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Ffestiniog","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":"Tan-y-Grisiau Blaenau Ffestiniog","contact\_country":"","contact\_email":"info@fhc.co.uk  ","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"01766 830465","contact\_state":"Gwynedd","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2013-07-26T15:44:34Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"Commissioned in 1963, Ffestiniog Power Station was the UK's first major pumped storage power facility. Although of an older generation to those at Dinorwig, Ffestiniog's four generating units are still capable of achieving a combined output of 360MW of electricity - enough to supply the entire power needs of North Wales for several hours.\r\n\r\nThe Generation Cycle begins at Llyn Stwlan - Ffestiniog's upper reservoir. Large screens inside the intake towers are opened to activate the high-pressure downflow.\r\n\r\n27 cubic metres of water per second are discharged through two high-pressure shafts (each 200 metres in depth), which are connected to four concrete-lined tunnels. Steel penstocks then direct the discharge into the station via inlet pipes and valves to start generation.\r\n\r\nWater is captured in Tan-y-Grisiau and pumped back to Llyn Stwlan, usually overnight, to complete the cycle.\r\n\r\nSource: http://www.fhc.co.uk/ffestiniog.htm","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":457,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/457/ffestiniog2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/457/thumb\_ffestiniog2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/457/partner\_ffestiniog2.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":null,"is\_sub\_project":null,"iso":"N/A","latitude":52.959065,"longitude":-3.933458,"master\_project\_id":null,"name":"Ffestiniog Pumped Hydro Power Plant","om\_contractor":"","organization":null,"owner\_1":"First Hydro Company","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.fhc.co.uk/ffestiniog.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":360000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Gwynedd","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Closed-loop Pumped Hydro Storage","technology\_type\_l1":"Closed-loop Pumped Hydro Storage","technology\_type\_l2":"Closed-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2013-12-07T08:10:04Z","updated\_at\_by\_admin":"2013-12-06T21:12:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Lochawe","commissioning\_on":"2022-10-15","companion":"","construction\_on":null,"contact\_city":"Lochawe ","contact\_country":"United Kingdom","contact\_email":"visit.cruachan@scottishpower.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"1866 822 168 ","contact\_state":"Dalmally ","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2013-07-26T16:32:58Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"Cruachan Power Station is a pumped-storage hydro-electric power station which has a visitor centre at the side of Loch Awe, located on the A85 about 19 miles east of Oban. Opened by the Queen in October 1965, it is one of four pumped storage power schemes in the UK, and has the distinction of being the world's first high head reversible pumped-storage hydro scheme. The station has also been used as the setting for several films, including the James Bond film The World is not Enough.\r\n\r\nNicknamed The Hollow Mountain, Cruachan was constructed between 1959 and 1954 and is unique in that the station is concealed within the hollowed out rock of Ben Cruachan, 3,694 feet (1,126 m), which overlooks the visitor centre. It was conceived and designed by Sir Edward MacColl, a Scottish engineer and a pioneer of hydro electricity in Scotland, with numerous projects to his credit. The only visible features are the dam, which is 1,000 feet (316 m) wide and located 1,300 feet (390 m) up the mountain, and the station offices and visitor centre, which lie on the loch side below the dam, and next to the road.\r\n\r\nBuried in the mountain and accessed by a tunnel 23 feet (7 m) wide and 13 feet (4 m) high, the main cavern houses four motor-generator sets capable of generating a total output of 440 MW. Construction of the main cavern, similar in size to a football pitch, required the excavation of 220,000 cubic metres of rock and soil.\r\n\r\nThe station can operate for 22 hours before the supply of water in the reservoir is exhausted, and is required to maintain a 12 hour emergency supply in reserve. Figures given for the Foyers scheme show that the system can raise 167 tonnes of water (167 cubic metres) per second when pumping at full power, with the flow rate increasing to 200 tonnes per second when generating at full power.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":458,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/458/cruachdam01.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/458/thumb\_cruachdam01.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/458/partner\_cruachdam01.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":56.406482,"longitude":-5.112735,"master\_project\_id":null,"name":"Cruachan Power Station","om\_contractor":"","organization":null,"owner\_1":"Scottish Power","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.visitcruachan.co.uk/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Load Following (Tertiary Balancing)","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":440000,"size\_kwh":22.0,"size\_kwh\_hours":22,"size\_kwh\_minutes":0.0,"state":"Dalmally","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-06-28T00:33:27Z","updated\_at\_by\_admin":"2016-06-28T00:33:27Z","updated\_by":null,"updated\_by\_email":null,"utility":"Scottish Power","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-07-28","approval\_status":2,"city":"Marmora","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Canada","contact\_email":"john.wright@northlandpower.ca","contact\_info\_visible":false,"contact\_name":"John Wright","contact\_phone":"647-288-1248","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2013-07-28T21:38:59Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Marmora project will use an open pit and an upper reservoir in a closed-loop configuration. Combination pumps/generators will pump water up into the reservoir during off-peak periods and then release it back down into the mine during on-peak periods to generate electricity. The design provides for an average head of 140 metres, producing 400 MW of generated power to enable time-shifting to support renewable energy sources and grid demand patterns.","developer":"Northland Power Inc","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":459,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/459/marmora.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/459/thumb\_marmora.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/459/partner\_marmora.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":44.482947,"longitude":-77.682106,"master\_project\_id":null,"name":"Marmora Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"Northland Power","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.northlandpower.ca/WhatWeDo/Projects.aspx?projectID=349","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":400000,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Ontario","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Closed-loop Pumped Hydro Storage","technology\_type\_l1":"Closed-loop Pumped Hydro Storage","technology\_type\_l2":"Closed-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-10T00:11:29Z","updated\_at\_by\_admin":"2016-05-10T00:11:29Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Niagara-on-the-Lake","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"dan.roorda@opg.com","contact\_info\_visible":false,"contact\_name":"Dan Roorda","contact\_phone":"905 357 0322 ext. 2953","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2013-07-28T22:14:24Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The 174 megawatt Sir Adam Beck Pump Generating Station and its 300-hectare reservoir were constructed concurrent with the Sir Adam Beck II Generating Station.\r\n\r\nWater diverted to the Sir Adam Beck generating complex is typically pumped into the reservoir at night so it can be used to generate electricity during subsequent periods of high electricity demand. Six mixed-flow variable-pitch reversible pump-turbines are installed at the pump generating station. The six pumps are capable, in a period of about eight hours, of filling the reservoir.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":463,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/463/Sir-Adam-Beck-Generating-Station.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/463/thumb\_Sir-Adam-Beck-Generating-Station.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/463/partner\_Sir-Adam-Beck-Generating-Station.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":43.1444964,"longitude":-79.0449418,"master\_project\_id":null,"name":"Sir Adam Beck Hydroelectric Generating Station","om\_contractor":"","organization":null,"owner\_1":"Ontario Power Generation","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.opg.com/power/hydro/niagara\_plant\_group/adambeckpgs.asp","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":174000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Ontario","status":"Operational","street\_address":"14000 Niagara Parkway","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-10T00:11:19Z","updated\_at\_by\_admin":"2016-05-10T00:11:19Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"L0S 1J0"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Minamiaiki","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-05-01","contact\_city":"","contact\_country":"United States","contact\_email":"info@wash.tepco.com","contact\_info\_visible":false,"contact\_name":"TEPCO Washington Office","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-07-29T01:41:40Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Kannagawa Hydropower Plant (神流川発電所) is partially operational. This entry details the current installed capacity of the plant with 1 470 MW pump commissioned in 2005 and the second commissioned in 2012. See Kannagawa Hydro Power Plant (2019 Expansion) for details on later commission dates and capacity. \r\n\r\nThe power plant utilizes the Minamiaiki River along with an upper and lower reservoir created by two dams, the upper Minamiaiki Dam and the lower Ueno Dam. The power station in between the two dams will contain six 470 MW pump-generators for a total installed capacity of 2,820 MW. When completed, the plant will have the second-largest (after Bath County Pumped Storage Station) pumped-storage power capacity in the world.\r\n\r\nThe company says Units 1 and 2 are the first in the world to use a \"split runner,\" which enables simultaneous operation of both the pump and turbine blade. Co-developed with Toshiba, the technology increases the output by 20 MW per unit.\r\n\r\n\r\nhttp://www.jepic.or.jp/en/data/EPIJJapanData.pdf","developer":"Tokyo Electric Power Company (TEPCO)","electronics\_provider":"Hitachi, Mitsubishi Heavy Industries, Toshiba","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":464,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/464/kannagawa.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/464/thumb\_kannagawa.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/464/partner\_kannagawa.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.0359852,"longitude":138.5469897,"master\_project\_id":null,"name":"Kannagawa Hydropower Plant No.1, No. 2","om\_contractor":"","organization":null,"owner\_1":"Tokyo Electric Power Company (TEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.powermag.com/issues/cover\_stories/Kannagawa-Hydropower-Plant-Japan\_461.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_5":"Frequency Regulation","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":940000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Nagano","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-10T17:55:09Z","updated\_at\_by\_admin":"2016-05-10T17:55:09Z","updated\_by":null,"updated\_by\_email":null,"utility":"Tokyo Electric Power Company (TEPCO)","utility\_type":"Investor Owned","vendor\_company":"Toshiba","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Sokyriany","commissioning\_on":null,"companion":"Dniester HPP-I, Dniester HPP-II","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"water@uhp.kharkov.ua, marketing@uhp.kharkov.ua","contact\_info\_visible":false,"contact\_name":"Ukrhydroproject PJSC","contact\_phone":"+38 (057) 717-57-05","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Ukrhydroproject PJSC","contractor\_2":"Emerson Process Management","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Ukraine","created\_at":"2013-07-29T02:17:44Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Dniester Pumped Storage Power Station is a pumped storage hydroelectric scheme that uses the Dniester River 8 km (5 mi) northeast of Sokyriany in Chernivtsi Oblast, Ukraine. Currently, one of the seven 324 MW generators is operational and when complete, the power station will have an installed capacity of 2,268 MW. During pumping, the power station will consume a maximum of 2,947 MW.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":465,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/465/dniester.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/465/thumb\_dniester.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/465/partner\_dniester.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":48.45,"longitude":27.4166667,"master\_project\_id":null,"name":"Dniester Pumped Storage Power Station","om\_contractor":"Dnisterhydroenergo","organization":null,"owner\_1":"Ukrhydroenergo","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://en.wikipedia.org/wiki/Dniester\_Pumped\_Storage\_Power\_Station","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Load Following (Tertiary Balancing)","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":2268000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Chernivtsi Oblast","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:54:05Z","updated\_at\_by\_admin":"2013-07-29T02:18:32Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Fuling","commissioning\_on":null,"companion":"","construction\_on":"2022-12-01","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Hydrochina Huadong","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1200000000.0,"cost\_OPEX":null,"country":"China","created\_at":"2013-07-29T02:41:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Jixi Pumped Storage Power Station is a pumped-storage hydroelectric power station currently under construction in Jixi County, Anhui Province, China. Studies were carried out in 2008 and construction began in December 2010. It is expected to last 6 years.\r\n\r\nThe power station will contain six 300 MW Francis pump turbine-generators.","developer":"State Grid Corporation of China, East China Grid, Jiangsu Electric Power, Shanghai Electric Power, Xuangcheng municipal government","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":466,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":30.132157,"longitude":118.733187,"master\_project\_id":null,"name":"Jixi Pumped Storage Power Station (绩溪抽水蓄能电站) ","om\_contractor":"","organization":null,"owner\_1":"Multiple","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.yztpdq.com/articleinfo/detail\_5\_10\_2505.aspx","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1800000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Anhui","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:53:57Z","updated\_at\_by\_admin":"2013-11-25T21:14:56Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Kōshū","commissioning\_on":"2022-06-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"info@wash.tepco.com","contact\_info\_visible":false,"contact\_name":"TEPCO Washington Office","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":2200000000.0,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-07-29T03:01:54Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Kazunogawa Dam (葛野川ダム) uses water from the Sagami River system to power an 800 MW pumped storage hydroelectric scheme. It is located 18 km (11 mi) east of Kōshū in Yamanashi Prefecture, Japan.\r\n\r\nWhen energy demand is high, water from the upper reservoir is released down to the underground power station via a single 3.3 km (2 mi) long headrace tunnel which splits into two 1.8 km (1 mi) tunnels before each separate into two 620 m (2,034 ft) long penstocks. Each penstock feeds a single reversible 400 MW Francis turbine-generator with water before it is released into a 3.3 km (2 mi) long tailrace tunnel which discharges into the lower reservoir, created by the Kazunogawa Dam. When energy demand is low and therefore inexpensive, the turbines reverse into pumps and send water from the lower reservoir back to the upper reservoir. The process is repeated when necessary to help balance electricity loads. The difference in elevation between the upper and lower reservoirs affords an effective hydraulic head of 714 m (2,343 ft) and maximum of 779 m (2,556 ft).\r\n\r\nThere are currently two expansion projects that are taking place including listed separately as Kazunogawa (No.3) Pump Expansion and Kazunogawa (No.4) Pump Expansion.\r\n\r\nhttps://en.wikipedia.org/wiki/Kazunogawa\_Pumped\_Storage\_Power\_Station\r\n\r\nhttp://www.industcards.com/ps-japan.htm\r\n\r\nhttp://www.jepic.or.jp/en/data/EPIJJapanData.pdf","developer":"Tokyo Electric Power Company (TEPCO)","electronics\_provider":"Hitachi, Mitsubishi Heavy Industries, Melco","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":467,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/467/kazunogawa.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/467/thumb\_kazunogawa.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/467/partner\_kazunogawa.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":35.7043159,"longitude":138.7294044,"master\_project\_id":null,"name":"Kazunogawa Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Tokyo Electric Power Company (TEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.power-technology.com/projects/kazunogawa/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":800000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Yamanashi","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:53:33Z","updated\_at\_by\_admin":"2013-12-06T01:30:00Z","updated\_by":null,"updated\_by\_email":null,"utility":"TEPCO","utility\_type":"","vendor\_company":"Hitachi, Mitsubishi Heavy Industries, Toshiba","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Tianmu Lake","commissioning\_on":null,"companion":"","construction\_on":"2022-05-01","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"NARI Technology Development Company","contractor\_2":"Hydrochina International Engineering Co. 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Ltd., South Design and Research Institute, Liyang City Investment Company","electronics\_provider":"Converteam","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":470,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/470/liyang.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/470/thumb\_liyang.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/470/partner\_liyang.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":31.2865686,"longitude":119.4222855,"master\_project\_id":null,"name":"Liyang Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Guoxin Asset Management Group Ltd.","owner\_2":"Hydrochina International Engineering Co. 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The scheme was redeveloped to focus on pumped-storage in 1969, having been purchased by the Hydro Board from the British Aluminium Company (BAC). The scheme was originally built by BAC in 1896 and was the first large-scale commercial hydro-electric scheme in the UK, used to power an aluminium smelter also located here until this closed in 1967. BAC created a reservoir by joining two small lochs to form Loch Mhor, which lies 179 m above Loch Ness and 2 miles away.\r\n\r\nDuring the redevelopment, a 5 MW turbine was installed in the original power station building to replace the original plant and provide pure hydro-electric generation, while the tunnels and pipes which carried the water were reused. The River Fechlin was diverted into Loch Mhor to provide additional water and, to support the pumped-storage system, new tunnels and a further power station were built.\r\n\r\nA new power station was built to house two 150 MW Francis generation-motor sets, each weighing 914 tonnes, with 5 m wide turbine blades. 100 cubic meters of water pass through each turbine and out into the loch every second during generation. The turbines can be brought from a standstill to full power output in less than two minutes, which makes the station extremely responsive to demand. The new scheme became fully operational in 1975.\r\n\r\nThe scheme has a total capacity of 305 MW and is run by Scottish & Southern Energy Plc.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":471,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":57.3228575,"longitude":-4.4243817,"master\_project\_id":null,"name":"Foyers Pumped Storage Power Station ","om\_contractor":"","organization":null,"owner\_1":"Scottish and Southern Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available ","primary\_reference":"http://www.scottish-places.info/scotgaz/features/featurefirst3852.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":300000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Highland","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:53:20Z","updated\_at\_by\_admin":"2014-08-07T21:01:30Z","updated\_by":null,"updated\_by\_email":null,"utility":"Scottish and Southern Energy","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Queens","commissioning\_on":"2022-01-02","companion":"","construction\_on":null,"contact\_city":"Brooklyn","contact\_country":"United States","contact\_email":"vic@greenchargenet.com","contact\_info\_visible":false,"contact\_name":"Vic Shao","contact\_phone":"347-384-2600","contact\_state":"New York","contact\_street\_address":"20 Jay Street, Suite 1020","contact\_zip":"11201","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-07-30T20:45:10Z","created\_by\_id":46,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks' GreenStation demonstration consists of a Lithium Ion storage unit, a system controller, one DC Fast electric vehicle charger (NYC's first DC charger). Primary benefits include peak shaving and demand charge avoidance. The system is tied to a network operations center where loads are monitored and controlled in real-time. The project is supported by a DOE Smart Grid Demonstration Grant. ","developer":"Engie Storage (formerly Green Charge Networks)","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":472,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Engie Storage (formerly Green Charge Networks)","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.744869,"longitude":-73.776886,"master\_project\_id":null,"name":"Lithium Ion Distributed Energy Storage System at 7-Eleven - Engie Storage (formerly Green Charge Networks) ","om\_contractor":"","organization":"Engie Storage (formerly Green Charge Networks)","owner\_1":"Engie Storage (formerly Green Charge Networks)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.greentechmedia.com/articles/read/green-charge-networks-and-new-york-citys-corner-store-smart-grid","primary\_reference1":"","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":100,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"New York","status":"Operational","street\_address":"58-20 Francis Lewis Blvd.","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-17T23:22:27Z","updated\_at\_by\_admin":"2015-12-24T00:25:18Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Consolidated Edison Company of New York (Con Edison)","utility\_type":"Investor Owned","vendor\_company":"Saft America","zip":"11364"}},{"project":{"announcement\_on":"2022-11-01","approval\_status":1,"city":"Kirkwall","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jenny.1.rogers@sse.com","contact\_info\_visible":true,"contact\_name":"Jenny Roger","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2013-07-30T23:47:11Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"\"Mitsubishi Heavy Industries, Ltd. (MHI), jointly with Scottish Hydro Electric Power Distribution (SHEPD), has begun an energy storage system demonstration project using the distribution grid in the UK's Orkney Islands, which has a high penetration of renewable energy. The project aims at demonstrating power supply stabilization in the region by introducing a container-housed large capacity energy storage system using lithium-ion rechargeable batteries, with a power output/input capability of 2MW (megawatts). The storage system will be handed over for operation in the middle of 2013.\r\n \r\nThe demonstration project is conducted with the support of New Energy and Industrial Technology Development organization (NEDO) of Japan, under the \"\"Development of Technology for Safe, Low-cost, Large-size Battery System\"\" programme. In the project, Mitsubishi Power Systems Europe, Ltd. (MPSE), the business base for MHI's power system operations in Europe, will jointly provide the energy storage service to Scottish Hydro Electric Power Distribution plc (SHEPD) The funding for the project is being provided to SHEPD from OFGEM, under it's Tier 1 Low Carbon Network Fund.\r\n\r\nThe energy storage system, which has the capacity to store approximately 800kWh (kilowatt hour) nominal, 500kWh normal usage, consists of two 40ft containers for the batteries and a 40ft container for the power conditioning system. Each battery container houses more than 2,000 units of lithium-ion rechargeable batteries and its management system. The power conditioning system container houses a system for conversion of direct current (DC)/alternating current (A/C) and the associated input/output controls.\r\n\r\nThe energy storage system will be installed at SHEPD's Kirkwall Power Station. In the cases of power shortage or power surplus on the Orkney Islands, power is transmitted from/to the mainland through two 33kV submarine cables. When there is too much renewable energy, exceeding the export capacity of the cable to the mainland, the energy storage system will import part of the excess energy, reducing the need to constrain renewable generation on the islands, by reducing or stopping generator export.\" \r\n\r\nhttp://www.all-energy.co.uk/\_\_novadocuments/86694?v=635673060322170000\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":474,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/474/OrkneyStorageParkBatterySystemContainers.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/474/thumb\_OrkneyStorageParkBatterySystemContainers.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/474/partner\_OrkneyStorageParkBatterySystemContainers.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"SHEPD","latitude":58.984674,"longitude":-2.962249,"master\_project\_id":null,"name":"Orkney Storage Park Project","om\_contractor":"","organization":"","owner\_1":"Mitsubishi Power Systems Europe (MPSE)","owner\_2":"SSE Generation (Grid connection transfomer etc.)","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.pv-magazine.com/news/details/beitrag/orkney-hosts-uks-first-2-mw-energy-storage-trial\_100012415/#axzz3hOSyEyI3","primary\_reference1":"","projected\_lifetime":"3.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Transmission Congestion Relief","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Orkney","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T20:36:56Z","updated\_at\_by\_admin":"2015-07-30T17:13:35Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"Mitsubishi Heavy Industries, Ltd. (MHI)","zip":""}},{"project":{"announcement\_on":"2022-07-31","approval\_status":0,"city":"Bhira","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Shalinis@tatapower.com","contact\_info\_visible":false,"contact\_name":"Shalini Singh","contact\_phone":"022-6665 8748  ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"India","created\_at":"2013-07-31T19:26:45Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"Bhira, located about 150 km from Mumbai, was the third hydropower plant installed by The Tata Power Company Ltd. (TPCL) in 1927. Bhira power station with a 6 x 25 MW generating units (double overhang Pelton turbines), along with other hydro and thermal power stations forms a vital link in sustaining the industrial activity of Mumbai-Pune region of Maharashtra state. Realizing the crucial importance of peaking assistance to the grid, Tata Power had installed a pumped storage unit as an extension to the existing Bhira hydro power station. The Bhira pumped storage unit is the single largest such unit in India and is perhaps the only pumped storage unit operating in both pumping and generation mode in India at the time of its commissioning.\r\n","developer":"TaTa Powers","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":475,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/475/bhira\_mulshi-lake-\_-dam.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/475/thumb\_bhira\_mulshi-lake-\_-dam.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/475/partner\_bhira\_mulshi-lake-\_-dam.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":18.4548333,"longitude":73.39,"master\_project\_id":null,"name":"Bhira Pumped Storage Hydro Plant","om\_contractor":"","organization":null,"owner\_1":"TaTa Powers","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.tatapower.com/whatsnew/silver-shield.aspx","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":150000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Maharashitra","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:53:10Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Ghatghar","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-05-13","contact\_city":"","contact\_country":"","contact\_email":"N.A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"India","created\_at":"2013-07-31T19:37:53Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"Having started in 1994, the Ghatagr Dams Project, due for completion in 2005, is the first major dam construction in India to use fly ash as a major constituent.\r\n\r\nFunded by the Overseas Economic Cooperation Fund (OECF) of Japan, the £40 million Ghatghar Pumped Storage Scheme is also the first of its kind in the Maharashtra State being undertaken by the State Government's Irrigation Department.\r\n\r\nThe scheme involves the construction of two reservoirs. Both upper and lower reservoirs are constructed in Roller Compacted Concrete (RCC). This is the first time this method has been used in India. The water transmission system consists of an approach channel, intake structure and a pressure shaft that will take the water to the underground turbine house to feed two reversible units. The tailrace discharge from the turbine house is taken through the common tailrace tunnel to the lower pond.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":476,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/476/111\_projects\_Ghatghar\_Dam2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/476/thumb\_111\_projects\_Ghatghar\_Dam2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/476/partner\_111\_projects\_Ghatghar\_Dam2.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":19.283333,"longitude":73.7,"master\_project\_id":null,"name":"Ghatghar Pumped Storage Hydroelectric Power Plant","om\_contractor":"","organization":null,"owner\_1":"Maharashtra State Power Generation Co. Ltd.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.water-technology.net/projects/ghatagar/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":250000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Maharashitra","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-10T17:58:08Z","updated\_at\_by\_admin":"2016-05-10T17:58:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"Maharashtra State Power Generation Co. 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Its underground power house has four vertical Francis reversible units rated at 102MW, with generators of 100MW. The first unit was supplied by Boving and GE of the UK, while the latter collaborated with India's BHEL to supply the other three units, all of mixed type.\r\nThe Kadamparai Pumped Storage Hydro Electric station (4 x100 MW) in Coimbatore District was commissioned in the year 1986 and is the first of its kind in the country to operate both in operation and pumping mode since 1987. In this Power House the off peak energy is utilized to pump water to the upper reservoir and during peak hours the Power House is put in generation mode.\r\n","developer":"","electronics\_provider":"Mitsubishi Heavy Industries ","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":479,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/479/Kadamparai-Dam.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/479/thumb\_Kadamparai-Dam.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/479/partner\_Kadamparai-Dam.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":11.0168445,"longitude":76.9558321,"master\_project\_id":null,"name":"Kadamparai Hydroelectric Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"West Bengal State Electricity Distribution Co. 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Ltd.","utility\_type":"Public Owned","vendor\_company":"Mitsui","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Purulia","commissioning\_on":"2022-02-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"India","created\_at":"2013-07-31T20:59:11Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"\"Purulia Pumped Storage Project of West Bengal State Electricity Distribution Company Ltd (WBSEDCL) envisaged 4 units of 224 MW each. This project can generate 900 MW power instantly by discharging stored water from Upper dam to Lower Dam through reversible pump-turbine and generator motor. The project located in Ajodhya Hills in Bagmundi village of Purulia district was commissioned in February 2008 and was dedicated to the nation by the Buddhadeb Bhattercharjee, Chief Minister of West Bengal on 6th April 2008. The project cost of Rs 2,953 crore is funded as a loan assistance from the Japan Bank for International Cooperation. The entire Power house was constructed under the hills, by gauging out the rocky hills of Purulia , with access through a kilometer long tunnel. HCC- L&T JV carried out a major portion of the project under contract from M/s TAISEI, one of the Japanese Contractors. HVAC System for\r\nthe entire project was carried out by Aircon Group under sub-contract from HCC- L&T JV.\"\r\n","developer":"","electronics\_provider":"Mitsubishi Heavy Industries ","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":480,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":23.3320779,"longitude":86.365208,"master\_project\_id":null,"name":"Purulia Pumped Storage Hydroelectric Power Plant","om\_contractor":"","organization":null,"owner\_1":"West Bengal State Electricity Distribution Co. 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Ltd.","utility\_type":"Public Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-07-09","approval\_status":0,"city":"Qingyuan","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Chongqing Industrial & Civil Electric Power Equipment Company","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-07-31T21:05:55Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"CSG Power Generation Company, a group company of China Southern Power Grid Co. Ltd., is developing the 1,280 MW Qingyuan Pumped-Storage Power Station in Guangdong Province. The powerhouse will contain four 320 MW units consisting of pump-turbines, motor-generators, and associated equipment. The first unit at Qingyuan is expected to be commissioned in October 2014.\r\n\r\nThe project's dynamic total investment is approximately 5 billion yuan.","developer":"CSG Power Generation Company","electronics\_provider":"Toshiba","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":481,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":23.681764,"longitude":113.056031,"master\_project\_id":null,"name":"Qingyuan Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"China Southern Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.cqgmgd.com/en/ReadNews.asp?rid=822","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Load Following (Tertiary Balancing)","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1280000,"size\_kwh":9.0,"size\_kwh\_hours":9,"size\_kwh\_minutes":0.0,"state":"Guangdong","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:52:42Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"China Southern Power Company","utility\_type":"Federally Owned","vendor\_company":"Toshiba","zip":""}},{"project":{"announcement\_on":"2021-12-31","approval\_status":1,"city":"Tehri","commissioning\_on":"2021-12-31","companion":"Hydroelectric Dam","construction\_on":"2022-09-01","contact\_city":"","contact\_country":"","contact\_email":"ben.yoon@hq.doe.gov","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"India","created\_at":"2013-07-31T21:08:38Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"Tehri PSP comprising of four reversible pump turbine units of 250 MW each, involves construction of an Underground Machine Hall on the left bank of river Bhagirathi. The main feature of the Project is the large variation of about 90 m between the maximum and minimum head, under which the reversible units shall operate. The operation of Tehri PSP is based on the concept of recycling of water discharged between upper reservoir to lower reservoir. The Tehri Dam reservoir shall function as the upper reservoir and Koteshwar reservoir as the lower balancing reservoir. On completion, additional generating capacity of 1000 MW, peaking power, will be added to the Northern Region (annual generation of 1268 million units). \r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":482,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/482/tehri\_pumped\_hydro.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/482/thumb\_tehri\_pumped\_hydro.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/482/partner\_tehri\_pumped\_hydro.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":30.3738609,"longitude":78.4324809,"master\_project\_id":null,"name":"Tehri Pumped Storage Hydroelectric Power Plant","om\_contractor":"","organization":null,"owner\_1":"THDC India Ltd. 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Hongping will generate 2,400 MW of power once fully developed, making it one of the largest pumped storage plants in the world.","developer":"","electronics\_provider":"China Gezhouba Group Corporation","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":483,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":27.95968,"longitude":116.4689852,"master\_project\_id":null,"name":"Hongping Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"State Grid Corporation of China (SGCC)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.sgcc.com.cn/ywlm/gsyw-e/232055.shtml","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Load Following (Tertiary Balancing)","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1200000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Jiangxi","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-16T18:25:27Z","updated\_at\_by\_admin":"2016-05-16T18:25:27Z","updated\_by":null,"updated\_by\_email":null,"utility":"State Grid Corporation of China (SGCC)","utility\_type":"Federally Owned","vendor\_company":"Voith","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Xianyou","commissioning\_on":"2021-12-20","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@chinapower.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-07-31T22:07:32Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The station will have four 300 MW vertical Francis reversible generating units for a planned annual power output of about 1.9 billion kilowatt-hours and an annual utilization of 1580 hrs. ","developer":"Fujian Xianyou Pump-Storage Co. Ltd","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":484,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":25.362094,"longitude":118.691601,"master\_project\_id":null,"name":"Xianyou Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"State Grid Corporation of China 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implementing entity Perusahaan Listrik Negara (PLN) in hydropower planning, development and operation. \r\n\r\nThe plant will utilize four 260 MW pump-turbine generating units.","developer":"Perusahaan Listrik Negara","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":485,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-6.9147444,"longitude":107.6098111,"master\_project\_id":null,"name":"Upper Cisokan Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Perusahaan Listrik Negara","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://documents.worldbank.org/curated/en/2011/04/14171427/indonesia-upper-cisokan-pumped-storage-power-project","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1040000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"West 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Using five reservoirs and three power stations at steep variations in altitude, the scheme currently has an installed capacity of 479.8 MW, 140 MW of which comes from a pump-generator at the Tierfehd power station. Construction on the Limmern Dam and Linth–Limmern Power Stations began in 1957. The Limmern Dam was complete in 1963 and the power stations were all operational by 1968. In 2009, the 140 MW pumped-storage component between Lake Limmern and Tierfehd was commissioned. In 2010 construction began on the Linthal 2015 project, which is the addition of a 1,000 MW pumped-storage component between Lake Mutt and Lake Limmern. This also includes an expansion of Lake Mutt and the Tierfehd Balancing Reservoir.","developer":"Kraftwerk Linth-Limmern AG","electronics\_provider":"ABB, Nexans","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":486,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/486/linth-limm.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/486/thumb\_linth-limm.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/486/partner\_linth-limm.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":47.0404265,"longitude":9.0672085,"master\_project\_id":"781","name":"Linth–Limmern Pumped Storage 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Nahanagan","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"info@esb.ie","contact\_info\_visible":false,"contact\_name":"ESB","contact\_phone":"+353 1 676 5831 ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Ireland","created\_at":"2013-08-01T00:56:16Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The power station is designed to generate electricity at times of peak demand and is instantly dispatchable: it can go from standstill to full generation within 75 seconds, compared with 12 hours for some thermal plants.\r\n\r\nSince 2004, Turlough Hill has been the Hydro Control Centre (HCC) for the entire ESB hydroelectric portfolio, which comprises 19 generators in total.\r\n\r\nBetween 2007 and 2012, Voith Hydro, the original equipment manufacturer, refurbished all four 73 MW pump-generators in the plant.\r\n","developer":"Electricity Supply Board (ESB)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":489,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/489/turlough.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/489/thumb\_turlough.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/489/partner\_turlough.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":53.0280556,"longitude":-6.3930556,"master\_project\_id":null,"name":"Turlough Hill Pumped 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Hydro","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Moura","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"edia@edia.pt ","contact\_info\_visible":false,"contact\_name":"EDIA - Empresa de Desenvolvimento e Infra-Estruturas do Alqueva","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Portugal","created\_at":"2013-08-01T20:00:02Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"The Alqueva Dam is an arch dam and the center-piece of the Alqueva Mutlipurpose Project. It impounds the River Guadiana, on the border of Beja and Évora Districts in south of Portugal. The dam takes its name from the town of Alqueva to its right bank. It creates a large reservoir with an inter-annual regulation capacity from which water may be distributed throughout the region. The dam was completed in 2002 and its reservoir was full in 2012. The 520 MW power station was commissioned in two stages, stage I in 2004 and stage II in 2013. The Alqueva Dam constitutes one of the largest dams and artificial lakes (250 km²) in Western Europe.\r\n\r\nIn 2004, the first stage of the hydroelectric power station was commissioned, with a capacity of 260 megawatts. The second stage, with an additional 260 MW, was commissioned in 2013. The power station contains four 129.6 MW reversible Francis turbines. With these turbines, the power station is afforded a pumped-storage capability. Power is generated during high demand periods and at times of low demand, the turbines reverse and pump water from a much smaller reservoir below the dam back into the main reservoir. Pedrogao Dam forms the lower reservoir.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":490,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/490/Alqueva\_dam.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/490/thumb\_Alqueva\_dam.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/490/partner\_Alqueva\_dam.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.197508,"longitude":-7.496394,"master\_project\_id":null,"name":"Alqueva Pumped Hydro Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Energia de Portugal (EDP)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.alstom.com/press-centre/2013/1/inauguration-of-alqueva-ii-hydro-plant-in-portugal-powered-by-alstom/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":520000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Evora","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:51:49Z","updated\_at\_by\_admin":"2014-06-30T19:10:11Z","updated\_by":null,"updated\_by\_email":null,"utility":"Energia de Portugal (EDP)","utility\_type":"Federally Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-08-02","approval\_status":2,"city":"Schleiz","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"thomas.schulz@vattenfall.de","contact\_info\_visible":false,"contact\_name":"Ort Thomas Schulz","contact\_phone":"49 36 647-294 97-322","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-02T04:12:04Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Commissioned in 1932, the Bleiloch power plant houses two 40 MW Francis-type pumped storage units, and is used to shift energy from off-peak hours to peak demand hours.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":493,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/493/bleiloch.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/493/thumb\_bleiloch.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/493/partner\_bleiloch.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":50.5166667,"longitude":11.7166667,"master\_project\_id":null,"name":"Bleiloch Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Vattenfall","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"From standstill to operating turbine: 7 min. 10 sec.; From standstill to operating pump: 13 minutes","primary\_reference":"http://www.vattenfall.de/standortkarte/kraftwerke/pdf/Kraftwerk\_Bleiloch.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":80000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Thuringia","status":"Operational","street\_address":"bleilochtalsperre","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:51:43Z","updated\_at\_by\_admin":"2013-08-04T04:01:34Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-08-02","approval\_status":2,"city":"Saalfeld","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"thomas.schulz@vattenfall.de","contact\_info\_visible":false,"contact\_name":"Thomas Schulz","contact\_phone":"+49 36 647-294 97-322","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-02T04:46:14Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Hohenwarte Pumped Storage Scheme consists of two pumped storage power plants, Hohenwarte I rated at 63 MW and Hohenwarte II rated at 320 MW, and lies on the Saale River.\r\n\r\nHohenwarte I's first turbine generator was commissioned in 1942. Two additional turbines were added in 1959. The Saale River, closed off by a dam, forms the top basin for the power plant with a length of 27 km and a storage capacity of 180.86 million m3. (This dam was primarily built for flood control.) \r\n\r\nHohenwarte II has been in operation since 1966. With eight pumped-storage sets it is the largest hydro power plant on the Saale River. The layout of the top basin is artificial without any natural inflow with 3.02 million m³ of water. The Eichicht catchment basin is used as a bottom basin for the Hohenwarte I and II pumped-storage plants. The hydro power generating sets are installed in a powerhouse constructed in the bottom basin.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":494,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/494/Hohenwarte\_I\_.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/494/thumb\_Hohenwarte\_I\_.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/494/partner\_Hohenwarte\_I\_.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":50.6492736,"longitude":11.3661502,"master\_project\_id":null,"name":"Hohenwarte Pumped Storage Scheme","om\_contractor":"","organization":null,"owner\_1":"Vattenfall","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Avg. Annual Generation: 251 GWh (Hohenwarte-I: 74 GWh, Hohenwarte-II: 177 GWh)","primary\_reference":"http://powerplants.vattenfall.com/node/285","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":383000,"size\_kwh":5.5,"size\_kwh\_hours":5,"size\_kwh\_minutes":30.0,"state":"Thuringia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:51:37Z","updated\_at\_by\_admin":"2013-12-12T22:29:41Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Geesthacht","commissioning\_on":"2022-10-15","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Thomas.Schubert@vattenfall.de","contact\_info\_visible":false,"contact\_name":"Thomas Schubert","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-04T04:31:14Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Geesthacht Pumped-storage Power Plant was commissioned in 1958. The power plant is situated by the River Elbe and is the largest power plant of its kind in northern Germany.\r\n\r\nThe upper water reservoir, located almost 93 metres above sea level, is 600 metres long, 500 metres wide and has a water capacity of approximately 3.6 million m3. The plant has three turbines with a capacity of 40 MW each, giving a total capacity of 120 MW. After full discharge, the water is pumped up through three parallel pipelines to the water reservoir. The procedure of pumping up water and refilling the reservoir takes nine hours.\r\n\r\nSince 2001, the work was reduced to ten percent of the possible operating time because the state government had introduced a removal fee for surface water. This levy was now reduced to a tenth of the original amount.","developer":"Hamburg Electricitäts-Werke AG","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":495,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/495/geesthacht.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/495/thumb\_geesthacht.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/495/partner\_geesthacht.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":53.4379562,"longitude":10.3611665,"master\_project\_id":null,"name":"Geesthacht Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Vattenfall","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Average annual generation: 10 GWh","primary\_reference":"http://powerplants.vattenfall.com/node/287","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Black Start","service\_use\_case\_5":"Frequency Regulation","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":120000,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Schleswig-Holstein","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:51:30Z","updated\_at\_by\_admin":"2013-12-12T23:07:24Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Wendefurth","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Thomas.Schubert@vattenfall.de","contact\_info\_visible":false,"contact\_name":"Thomas Schubert","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-04T05:34:22Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Wendefurth Power Plant is operated as a peak load power plant by Vattenfall. At nighttime it pumps water up from the lower reservior to the upper reservior. The stored energy can be used to balance the feed in of renewable energies and also for grid stabilization.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":496,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/496/wendefurth.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/496/thumb\_wendefurth.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/496/partner\_wendefurth.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":51.7422639,"longitude":10.9189303,"master\_project\_id":null,"name":"Wendefurth Power Station","om\_contractor":"","organization":null,"owner\_1":"Vattenfall","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.vattenfall.de/standortkarte/kraftwerke/pdf/fb\_strom\_Wasser\_Wendefurth.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":80000,"size\_kwh":6.5,"size\_kwh\_hours":6,"size\_kwh\_minutes":30.0,"state":"Saxony-Anhalt","status":"Operational","street\_address":"Talsperre Wendefurth","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:51:24Z","updated\_at\_by\_admin":"2013-12-12T23:07:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-08-04","approval\_status":2,"city":"Niederwartha","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Thomas.Schubert@vattenfall.de","contact\_info\_visible":false,"contact\_name":"Thomas Schubert","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-04T06:14:06Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Niederwartha plant was one of the first pumped storage power plants realized on a large scale. Niederwartha was built from 1927 to 1930 and has a rated output of 120 megawatts, which can be generated by six Francis-type machine sets. Four of them, however, are currently shut down, leaving the plant's operational rated power at 40 MW.\r\n\r\nThe plant was damaged by an Elbe River flood in August 2002. Starting in November 2003, it was gradually put into operation again. Only two turbines have come back online because the other turbines' transformers are defective. Instead of repairing the machinery, it is planned to replace the outdated technology with only one turbine of 120 MW.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":499,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/499/Niederwartha.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/499/thumb\_Niederwartha.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/499/partner\_Niederwartha.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":51.093356,"longitude":13.6037314,"master\_project\_id":null,"name":"Niederwartha Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Vattenfall","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Working Capacity: 591 MWh","primary\_reference":"http://www.vattenfall.de/standortkarte/kraftwerke/pdf/Kraftwerk\_Niederwartha.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":40000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Saxony","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:51:17Z","updated\_at\_by\_admin":"2013-08-28T22:01:07Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-08-04","approval\_status":2,"city":"Ühlingen-Birkendorf","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Laufenburg","contact\_country":"Germany","contact\_email":"Ackermann.julia@schluchseewerk.de","contact\_info\_visible":false,"contact\_name":"Julia Ackerman","contact\_phone":"(0049) 07763 9278 80119","contact\_state":"","contact\_street\_address":"Säckinger Straße 67","contact\_zip":"D-79725","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-04T18:21:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Commissioned in 1943, the Witznau (or Albbecken) Pumped Storage Power Station is rated at 220 MW in generation mode and 128 MW in pumping mode. It is located in the district of Ühlingen-Birkendorf in the Black Forest.\r\n\r\nThe plant's lower reservoir, Witznaubecken, also serves as the upper reservoir for the nearby Waldshut pumped storage plant. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":500,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/500/Witznau.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/500/thumb\_Witznau.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/500/partner\_Witznau.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.68774,"longitude":8.2516,"master\_project\_id":null,"name":"Witznau Pumped Storage Power Station","om\_contractor":"Schluchseewerk AG","organization":null,"owner\_1":"RWE","owner\_2":"EnBW","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":50.0,"ownership\_percentage\_2":37.5,"performance":"Annual Generation: 230 GWh","primary\_reference":"http://www.schluchseewerk.de/de/standorte/schluchseegruppe/kraftwerk-witznau.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":220000,"size\_kwh":2.83333333333333,"size\_kwh\_hours":2,"size\_kwh\_minutes":50.0,"state":"Baden-Württemberg","status":"Operational","street\_address":"Schwarzatalstraße 5","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:51:11Z","updated\_at\_by\_admin":"2014-07-10T23:00:04Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"79777"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Wehr","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"Laufenburg","contact\_country":"Germany","contact\_email":"ackermann.julia@schluchseewerk.de","contact\_info\_visible":false,"contact\_name":"Julia Ackermann","contact\_phone":"(0049) 07763 9278 80119","contact\_state":"","contact\_street\_address":"Säckinger Straße 67 ","contact\_zip":"D-79725","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-04T18:58:40Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The underground Wehr power station contributes more than half of the total production of Schluchseewerk AG. Its high performance is enabled by the immense drop of 630 meters from the Hornberg Reservoir to the lower Wehra Reservoir.\r\n\r\nWehr is the largest power plant in Schluchseewerk's Hotzenwald Group of pumped storage, which also includes Säckingen Power Plant.","developer":"Schluchseewerk AG","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":501,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/501/wehr.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/501/thumb\_wehr.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/501/partner\_wehr.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.6363693,"longitude":7.9114875,"master\_project\_id":null,"name":"Wehr Pumped Storage Power Plant","om\_contractor":"Schluchseewerk AG","organization":null,"owner\_1":"RWE","owner\_2":"EnBW","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":50.0,"ownership\_percentage\_2":37.5,"performance":"Annual Generation: 1,160 GWh","primary\_reference":"http://www.schluchseewerk.de/de/standorte/hotzenwaldgruppe/kraftwerk-wehr.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":910000,"size\_kwh":7.0,"size\_kwh\_hours":7,"size\_kwh\_minutes":0.0,"state":"Baden-Württemberg","status":"Operational","street\_address":"Todtmooser Straße 150","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:51:04Z","updated\_at\_by\_admin":"2014-06-20T17:05:49Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Voith, Escher-Wyss","zip":"79664"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Bad Säckingen","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"Laufenburg","contact\_country":"Germany","contact\_email":"ackermann.julia@schluchseewerk.de","contact\_info\_visible":false,"contact\_name":"Julia Ackermann","contact\_phone":"(0049) 07763 9278 80119","contact\_state":"","contact\_street\_address":"Säckinger Straße 67 ","contact\_zip":"D-79725","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-04T19:25:04Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The underground Säckingen power station was Germany's first pumped storage plant built in an artificial cavern. Its four pumping/generating units are housed in an artificial cave with enormous dimensions (160 meters long, 23 meters wide, 33 meters high) which can be reached via a 1.5 km long access tunnel. The plant's upper reservoir, Eggberg Reservoir, is located approximately 400 meters above the plant. The Rhine serves as the lower reservoir. \r\n\r\nSäckingen is the first of two pumped storage plants in Schluchseewerk's Hotzenwald Group, which also includes Wehr Power Station.","developer":"Schluchseewerk AG","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":502,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/502/Saeckingen.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/502/thumb\_Saeckingen.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/502/partner\_Saeckingen.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.5656,"longitude":7.95418,"master\_project\_id":null,"name":"Säckingen Pumped Storage Power Plant","om\_contractor":"Schluchseewerk AG","organization":null,"owner\_1":"RWE","owner\_2":"EnBW","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":50.0,"ownership\_percentage\_2":37.5,"performance":"Annual Generation: 400 GWh","primary\_reference":"http://www.schluchseewerk.de/de/standorte/hotzenwaldgruppe/kraftwerk-saeckingen.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":360000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Baden-Württemberg","status":"Operational","street\_address":"Stollenweg 2","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:50:51Z","updated\_at\_by\_admin":"2014-06-20T17:06:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Voith, Escher-Wyss","zip":"79713"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"San Diego","commissioning\_on":"2022-09-01","companion":"Solar Photovoltaic (PV)","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"smuir@semprautilities.com","contact\_info\_visible":false,"contact\_name":"Sally Muir","contact\_phone":"858-654-1247","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-08-06T20:45:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"As part of SDG&E's sustainable communities porgram, Kokam energy has installed a 100kW/100kWh Lithium Ion Battery Energy Storage system at the San Diego Zoo. The system is coupled with a 90kW solar system which generates electricity for 5 EV chargers and 59 homes. The energy storage system balances the solar power to provide smooth energy output.","developer":"San Diego Gas and Electric","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":503,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/503/zoo.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/503/thumb\_zoo.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/503/partner\_zoo.png"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.7360673,"longitude":-117.1492696,"master\_project\_id":null,"name":"San Diego Zoo Solar-to-EV Project","om\_contractor":"","organization":"","owner\_1":"San Diego Gas and Electric","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"http://buildingdashboard.com/clients/sandiegozoo/","primary\_reference":"http://smartcitysd.org/resources/press/smart-city-san-diego-and-san-diego-zoo-unveil-solar-electric-vehicle-charging-projec","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Residential (Reliability)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Transportation Services","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"2920 Zoo Drive","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-01T16:07:26Z","updated\_at\_by\_admin":"2016-09-01T16:07:26Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Kokam","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Commerce","commissioning\_on":"2022-08-22","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"dchoee@pdeinc.com","contact\_info\_visible":false,"contact\_name":"Dan Cohee","contact\_phone":"562-824-0834","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-08-06T21:03:24Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"PDE's Electrical Training Institute Smart Microgrid demonstrates an existing electrical infrastructure integrated with advanced electronics, energy storage, solar, and controls, providing a platform for smarter and more reliable electrical systems. These technologies will enable adoption of the emerging smart grid, facilitate integration of electric vehicles to the grid, and support California's 2020 renewable portfolio standards requiring 33% of the state's electricity to be generated from renewable resources. \r\n\r\nThe system will demonstrate 6 smart grid functions:\r\n\r\n1. The ability to charge electric vehicles through multiple energy sources, including solar, battery energy storage system (BESS), or grid power. Benefits include reduced CO2 emissions, reduced demand on the grid and local electrical transmission and distribution system.\r\n\r\n2. Utilizing the BESS to smooth solar production at the local level. \r\n\r\n3. Respond to a demand response signal from the utility by injecting active power into the grid from stored energy and integrate with existing building management systems. \r\n\r\n4. Provide a more reliable electrical system by maintaining uninterrupted power during power outages and utilizing solar to sustain the load during daylight hours. \r\n\r\n5. Showcase state-of-the-art inverter technology capable of integrating 3 DC sources and varying voltages to improve efficiency and reliability of renewable sources of energy.\r\n\r\n6. Participate in ancillary utility markets by providing or absorbing power. ","developer":"PDE Total Energy Solutions","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":504,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/504/pde.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/504/thumb\_pde.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/504/partner\_pde.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.979751,"longitude":-118.144693,"master\_project\_id":null,"name":"Commerce Smart Microgrid System - PDE Total Energy Solutions","om\_contractor":"","organization":"PDE Total Energy Solutions","owner\_1":"Los Angeles Electrical Training Institute ","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.prnewswire.com/news-releases/smart-microgrid-system-offering-cutting-edge-energy-management-and-storage-to-be-unveiled-166907516.html","primary\_reference1":"https://www.pdeinc.com/net-zero-renewables-microgrid-ev-charging","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Transmission Congestion Relief","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":90,"size\_kwh":0.333333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":20.0,"state":"California","status":"Operational","street\_address":"6023 Garfield Ave.","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-03-04T01:15:55Z","updated\_at\_by\_admin":"2015-03-16T18:51:31Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Kokam","zip":"90040"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Waldshut-Tiengen","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"Laufenburg","contact\_country":"Germany","contact\_email":"ackermann.julia@schluchseewerk.de","contact\_info\_visible":false,"contact\_name":"Julia Ackermann","contact\_phone":"(0049) 07763 9278 80119","contact\_state":"","contact\_street\_address":"Säckinger Straße 67 ","contact\_zip":"D-79725","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-07T19:35:57Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Waldshut power plant is the youngest child of the Schluchsee Group, which also includes the Witznau and Häusern pumped storage power plants. Waldshut is the lower level of the three-chain scheme and uses the Rhine as its lower basin.","developer":"Schluchseewerk AG","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":505,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/505/Waldshut.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/505/thumb\_Waldshut.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/505/partner\_Waldshut.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.6184,"longitude":8.19367,"master\_project\_id":null,"name":"Waldshut Pumped Storage Power Plant","om\_contractor":"Schluchseewerk AG","organization":null,"owner\_1":"RWE","owner\_2":"EnBW","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":50.0,"ownership\_percentage\_2":37.5,"performance":"Annual Generation: 170 GWh","primary\_reference":"http://www.schluchseewerk.de/de/standorte/schluchseegruppe/kraftwerk-waldshut.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":150000,"size\_kwh":2.5,"size\_kwh\_hours":2,"size\_kwh\_minutes":30.0,"state":"Baden-Württemberg","status":"Operational","street\_address":"Kraftwerkstraße 13","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:50:44Z","updated\_at\_by\_admin":"2014-06-20T17:05:57Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Voith, Escher-Wyss","zip":"79761"}},{"project":{"announcement\_on":"2022-08-07","approval\_status":2,"city":"Häusern","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Laufenburg","contact\_country":"Germany","contact\_email":"ackermann.julia@schluchseewerk.de","contact\_info\_visible":false,"contact\_name":"Julia Ackermann","contact\_phone":"(0049) 07763 9278 80119","contact\_state":"","contact\_street\_address":"Säckinger Straße 67 ","contact\_zip":"D-79725","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-07T20:19:26Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Commissioned in 1931, the Häusern pumped storage power station is the oldest of the five pumped storage plants within the Schluchseewerk AG network and forms the upper level of the three-stage Schluchsee Group, which also includes Witznau and Waldshut. Häusern's upper basin is the Schluchsee, a reservoir with a volume of 108 million cubic meters. Häusern's lower basin, Schwarza Reservoir, serves as the upper basin for the Witznau power station.","developer":"Schluchseewerk AG","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":506,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/506/hausern.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/506/thumb\_hausern.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/506/partner\_hausern.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.75523,"longitude":8.1879,"master\_project\_id":null,"name":"Häusern Pumped Storage Power Plant","om\_contractor":"Schluchseewerk AG","organization":null,"owner\_1":"RWE","owner\_2":"EnBW","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":50.0,"ownership\_percentage\_2":37.5,"performance":"Annual Generation: 120 GWh","primary\_reference":"http://www.schluchseewerk.de/de/standorte/schluchseegruppe/kraftwerk-haeusern.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":100000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Baden-Württemberg","status":"Operational","street\_address":"Schwarzabruck 2","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:50:38Z","updated\_at\_by\_admin":"2014-06-20T17:05:37Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"79837"}},{"project":{"announcement\_on":"2022-08-07","approval\_status":0,"city":"Einsiedel","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@fairenergie.de","contact\_info\_visible":false,"contact\_name":"FairEnergie","contact\_phone":"+49 07121/582-0","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-07T23:15:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Kirchentellinsfurt Hydroelectric Power Plant on the Neckar River went into operation in 1926 and incorporates both a traditional hydroelectric plant and a pumped storage plant. The 1.3 MW pumped storage power station sits 1 kilometer North of and 130 m lower than the 1.2 MW traditional hydroelectric power station. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":507,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/507/kirchentellinsfurt.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/507/thumb\_kirchentellinsfurt.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/507/partner\_kirchentellinsfurt.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":48.601961,"longitude":9.1009866,"master\_project\_id":null,"name":"Kirchentellinsfurt Hydroelectric Power Plant","om\_contractor":"FairEnergie","organization":null,"owner\_1":"Stadtwerke Reutlingen","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.stadtwerke-reutlingen.de/fairenergie/06\_energie/wasserkraft-kirchentellinsfurt.php","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1300,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Baden-Württemberg","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:50:33Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Stadtwerke Reutlingen","utility\_type":"Public Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Erzhausen","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"PreussenElektra (later called E.ON)","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-07T23:51:31Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The pumped storage power plant Erzhausen in Lower Saxony was commissioned in 1964 after a ten-year construction phase by PreussenElektra (later called E.ON). At the beginning of 2009 Statkraft took over the pumped-storage power plant Erzhausen which has an installed capacity of 220 MW. The yearly electricity generation is variable and dependent on the electricity demand. \r\n\r\nThe Erzhausen pumped storage power plant works with four Francis-Spiral turbines and is primarily used for peak power needs as well as to support the power frequency. 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It's capacity of 90 MW comes from two Francis Turbines rated at 45 MW each. The maximum power in pumping mode is 68 MW. While the plant can generate for 6.5 hours before emptying the upper reservoir, the plant's two pumps take 11 hours completely fill the upper reservoir back up again. ","developer":"Technischen Werke der Stadt Stuttgart","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":509,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/509/glems.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/509/thumb\_glems.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/509/partner\_glems.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":48.5071632,"longitude":9.2854502,"master\_project\_id":null,"name":"Glems Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"EnBW","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Round Trip Efficiency: 74%","primary\_reference":"http://www.gea.de/region+reutlingen/neckar+erms/pumpspeicherkraftwerk+in+glems+lecks+per+knopfdruck+schliessbar.2714095.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":90000,"size\_kwh":6.5,"size\_kwh\_hours":6,"size\_kwh\_minutes":30.0,"state":"Baden-Württemberg","status":"Operational","street\_address":"Glems-unterbecken","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:50:20Z","updated\_at\_by\_admin":"2013-08-08T00:23:06Z","updated\_by":null,"updated\_by\_email":null,"utility":"Energie Baden-Württemberg (EnBW)","utility\_type":"Investor Owned","vendor\_company":"Escher-Wyss","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Happurg","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"carsten.thomsen-bendixen@eon.com","contact\_info\_visible":false,"contact\_name":"Carsten Thomsen-Bendixen","contact\_phone":"+49 2 11-45 79-5 44","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-11T04:16:35Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Happurg Pumped Storage Power Plant utilizes four Francis turbine sets and a 209 meter elevation drop between the upper reservoir and the lower basin, Happurger Lake. \r\n\r\nIn January 2011, the upper reservoir began to leak. Its water was drained into the lower lying lake and owner/operator E·ON found that the reservoir was in need of an overhaul. The rehabilitation project is currently underway and the power plant is expected to return to operation in 2017.","developer":"Fränkischen Überlandwerk","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":511,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/511/Happurg.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/511/thumb\_Happurg.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/511/partner\_Happurg.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":49.48711,"longitude":11.47441,"master\_project\_id":null,"name":"Happurg Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"E·ON","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://n-land.de/lokales/lok-detail/datum/2013/07/25/wassermassen-auf-der-bdquotiefgarageldquo.html#.UgcO5dJn-70","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":160000,"size\_kwh":5.61666666666667,"size\_kwh\_hours":5,"size\_kwh\_minutes":37.0,"state":"Bavaria","status":"Offline/Under Repair","street\_address":"Hauptstraße 26","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:50:14Z","updated\_at\_by\_admin":"2013-12-12T22:32:34Z","updated\_by":null,"updated\_by\_email":null,"utility":"E·ON","utility\_type":"Investor Owned","vendor\_company":"Voith","zip":"91230"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Herdecke","commissioning\_on":"2022-08-08","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"+49 2637 64-3211","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-11T05:26:40Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Herdecke (or Koepchenwerk) Pumped Storage Power Plant was originally commissioned in 1930, but an accident caused by a broken pump in December 1980 led to the plant's closure. Between 1985 and 1989, RWE built and commissioned a new pumped storage plant adjacent to the old one. The power plant was later modernized at the cost of €25 million between May and September 2007.\r\n\r\nThe plant uses roughly the same amount of energy in pumping mode (153,590 kW) as it creates in generating mode (153,000 kW).","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":513,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/513/Herdecke.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/513/thumb\_Herdecke.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/513/partner\_Herdecke.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":51.4031667,"longitude":7.4328376,"master\_project\_id":null,"name":"Herdecke Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"RWE","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Efficiency: 75%","primary\_reference":"http://www.rwe.com/web/cms/mediablob/de/346008/data/183748/5/rwe/innovation/projekte-technologien/energiespeicher/pumpspeicher-herdecke.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Load Following (Tertiary Balancing)","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":153000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Rhine-Westphalia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:50:08Z","updated\_at\_by\_admin":"2013-09-04T20:52:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"RWE","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Gemünden","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info.wasserkraft@eon-energie.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"+0 97 21 -20 92-48","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-11T06:09:33Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Langenprozelten Pumped Storage Station is a pumped storage power power station near Gemünden am Main at the Main in the under-Frankish district Main Spessart (Bavaria), which went in service in 1976. The hydro-electric power plant has an output of 164 MW. It uses two Francis turbines. The upper reservoir is nearly 300 meters higher than the lower reservoir and is connected with ist by one for about 1.3 km long pipes. The maximum head is 320 m. The upper reservoir has a capacity of approximately 1.5 millions m³.\r\n\r\nThe Langenprozelten Pumped Storage Station produces only traction current and is an important peak load power station in the traction network for railways. The maximum energy store ability amounts to 950 MWh. In the lower reservoir, waters of a creek are accumulated. The creek mostly leads no water in the summer. Therefore, if necessary, water is pumped from a further retention basin, which is situated 1.2 km below the lower reservoir. Both dams (of upper and lower reservoir) are rockfill embankment dams with an asphaltic concrete external sealing.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":516,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/516/langenprozelten.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/516/thumb\_langenprozelten.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/516/partner\_langenprozelten.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":50.059739,"longitude":9.6269733,"master\_project\_id":null,"name":"Langenprozelten Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"E·ON","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://apps.eon.com/documents/EWK\_Technik\_2010\_ger.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":164000,"size\_kwh":5.8,"size\_kwh\_hours":5,"size\_kwh\_minutes":48.0,"state":"Bavaria","status":"Operational","street\_address":"Am Sindersbach 25","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:50:01Z","updated\_at\_by\_admin":"2013-12-12T22:36:51Z","updated\_by":null,"updated\_by\_email":null,"utility":"E·ON","utility\_type":"Investor Owned","vendor\_company":"","zip":"97737"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Vagen","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"presse@swm.de","contact\_info\_visible":false,"contact\_name":"SWM","contact\_phone":"+49 0 89/23 61-50 42","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-12T03:25:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Leitzachwerk 1 was originally built as a traditional hydroelectric power plant and commissioned in 1913, making use of the waters of the Leitzach, a tributary of the Mangfall, and the recently dammed Seehamer Lake. The plant was then converted into a pumped storage power plant between 1927 and 1929. This pumped storage plant was later shut down and replaced by today's power plant, which was built between 1980 and 1983 and has a rated capacity of 49 MW. In pumping mode, the power plant requires 45.4 MW.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":517,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/517/Leitzachwerke1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/517/thumb\_Leitzachwerke1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/517/partner\_Leitzachwerke1.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":47.8483283,"longitude":11.857491,"master\_project\_id":null,"name":"Leitzachwerk I","om\_contractor":"","organization":null,"owner\_1":"Stadtwerke München","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.windkraft-journal.de/2013/07/30/pumpspeicherkraftwerk-trinkwasserversorgung-stromakku-und-naherholungsgebiet-fuer-muenchen/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":49000,"size\_kwh":11.25,"size\_kwh\_hours":11,"size\_kwh\_minutes":15.0,"state":"Bavaria","status":"Operational","street\_address":"Seehamer See","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:49:56Z","updated\_at\_by\_admin":"2013-12-12T23:06:26Z","updated\_by":null,"updated\_by\_email":null,"utility":"Stadtwerke München","utility\_type":"Public Owned","vendor\_company":"Voith","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Vagen","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"presse@swm.de","contact\_info\_visible":false,"contact\_name":"SWM","contact\_phone":"+49 0 89/23 61-50 42","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-12T03:41:06Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Between 1958 and 1960, a second pumped storage power plant was added near Leitzachwerk 1 on Seehamer Lake. While Leitzachwerk 1 uses Francis turbines to generate electricity, the Leitzachwerk 2 plant uses two Kaplan turbines rated at 24.6 MW each.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":518,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/518/Leitzachwerke\_2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/518/thumb\_Leitzachwerke\_2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/518/partner\_Leitzachwerke\_2.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":47.8483283,"longitude":11.857491,"master\_project\_id":null,"name":"Leitzachwerk II","om\_contractor":"","organization":null,"owner\_1":"Stadtwerke München","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.swm.de/dms/swm/pressemitteilungen/2013/07/versorgung20130730/Pressemitteilung%20vom%2030.07.2013.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":49200,"size\_kwh":11.25,"size\_kwh\_hours":11,"size\_kwh\_minutes":15.0,"state":"Bavaria","status":"Operational","street\_address":"Seehamer See","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:49:50Z","updated\_at\_by\_admin":"2013-12-12T23:06:04Z","updated\_by":null,"updated\_by\_email":null,"utility":"Stadtwerke München","utility\_type":"Public Owned","vendor\_company":"Voith, Escher-Wyss","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Deggendorf-Mietraching","commissioning\_on":"2022-01-01","companion":"Diesel Power Plant","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ruselkraftwerke@t-online.de","contact\_info\_visible":false,"contact\_name":"ruselkraftwerke","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-12T04:06:17Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Rusel Power Plant scheme incorporates a diesel power station, a traditional hydroelectric power station, and a pumped storage power station utilizing two turbines rated at 1.75 MW each. The power complex as a whole has a rated capacity of 39 MW.","developer":"Rusel Mbh","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":519,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/519/ruselkraftwerke.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/519/thumb\_ruselkraftwerke.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/519/partner\_ruselkraftwerke.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.8555897,"longitude":12.9970816,"master\_project\_id":null,"name":"Ruselkraftwerke Power Plant","om\_contractor":"","organization":"","owner\_1":"Rusel Mbh","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://de.wikipedia.org/wiki/Ruselkraftwerke","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":3500,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Bavaria","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2017-10-24T23:14:56Z","updated\_at\_by\_admin":"2013-12-12T23:11:42Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Trausnitz","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@gdfsuez-energie.de","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-12T04:43:17Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Reisach Pumped Storage Power Station belongs to the Jansen Power Plant Group, which utilizes the waters of the Pfreimd and includes two other hydroelectric power plants, Tanzmühle and Trausnitz. This group was recently acquired by the GDF Suez subsidiary Electrabel from the previous owner, E·ON. \r\nReisach and Tanzmühle are both capable of pumping water into and drawing water from the same upper basin, Rabenleite Reservoir.\r\n\r\nSee this link for an interesting animation of how the Jansen Power Plant group works: http://goo.gl/IxfCJI\r\n\r\n","developer":"Energieversorgung Ostbayern (OBAG)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":520,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/520/reisach.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/520/thumb\_reisach.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/520/partner\_reisach.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":49.529869,"longitude":12.2858418,"master\_project\_id":"525","name":"Reisach Pumped Storage Power Station","om\_contractor":"Electrabel","organization":null,"owner\_1":"GDF Suez","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.gdfsuez-energie.de/static/de/erzeugung/pfremid/pfreimd-start.swf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":99000,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Bavaria","status":"Operational","street\_address":"Seestraße 6","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:49:38Z","updated\_at\_by\_admin":"2014-07-17T21:39:56Z","updated\_by":null,"updated\_by\_email":null,"utility":"GDF Suez","utility\_type":"Investor Owned","vendor\_company":"","zip":"09655 741"}},{"project":{"announcement\_on":"2022-01-23","approval\_status":2,"city":"San Diego","commissioning\_on":"2021-12-12","companion":"230 kW Solar Photovoltaic (PV)","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"camron.gorguinpour@pentagon.af.mil; mick.wasco@usmc.mil; ","contact\_info\_visible":false,"contact\_name":"Camron Gorguinpour; Mick Wasco; Tom Stepien (Primus Power)","contact\_phone":"703.697.6300","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-08-13T21:33:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Primus Power was awarded a contract by Raytheon’s Integrated Defense Systems (IDS) business to deliver and support an electrical energy storage system for a microgrid at the Marine Corps Air Station (MCAS) in Miramar, California. Primus worked closely with Raytheon as part of the \"Zinc Bromide Flow Battery Installation for Islanding and Backup Power\" project funded by the Department of Defense Environmental Security Technology Certification Program (ESCTP).\r\n\r\nAt MCAS Miramar a Primus Power 250 kW - 1 MWh Primus EnergyPod is integrated with an existing 230 kW photovoltaic system. The combined microgrid system will demonstrate several capabilities including reducing peak electrical demand typically experienced in weekday afternoons and providing power to critical military systems when grid power is not available. The DoD is adopting microgrids at stationary bases to sustain operations independent of what is happening on the larger utility grid. Primus Power’s energy storage systems can shift, shape and firm electricity.\r\n","developer":"Raytheon","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Environmental Security Technology Certification Program (ESCTP)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":521,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/521/Miramar\_wide\_shot\_medium.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/521/thumb\_Miramar\_wide\_shot\_medium.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/521/partner\_Miramar\_wide\_shot\_medium.jpg"}},"integrator\_company":"Raytheon","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.8701459,"longitude":-117.1441227,"master\_project\_id":null,"name":"DOD Marine Corps Air Station Miramar Microgrid Energy Storage System","om\_contractor":"","organization":null,"owner\_1":"United States Marine Corps","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.primuspower.com/wp-content/uploads/2013/01/Primus-Power-press-release-DoD-microgrid-contract-13.01.23-website.pdf","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"Yes","research\_desc":"The objective of this project is to demonstrate the energy security and cost benefits of implementing a zinc bromide (Zn/Br) flow battery-based ESS at Marine Corps Air Station (MCAS) Miramar. Raytheon will lead a project to integrate innovative Zn/Br flow battery and Intelligent Energy Command and Control (IEC2) technologies with the existing MCAS infrastructure to increase energy security, provide an islanding capability, and reduce energy use and costs.","research\_institution":"Strategic Environmental Research and Development Program (SERDP)","research\_institution\_link":"http://www.serdp.org/Program-Areas/Energy-and-Water/Energy/Microgrids-and-Storage/EW-201242","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":250,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"MCAS Miramar","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-22T23:05:39Z","updated\_at\_by\_admin":"2016-03-22T23:05:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Primus Power","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Finnentrop","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"privatkunden@mark-e.de","contact\_info\_visible":false,"contact\_name":"+49 02331. 123-0","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-14T18:51:19Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Rönkhausen is an underground power plant containing two Francis turbines rated at 70 MW each. It rests between two artificial reservoirs, which are fed by the Glingebach, a tributary of the Lenne. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":522,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/522/ronkhausen.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/522/thumb\_ronkhausen.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/522/partner\_ronkhausen.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.1736091,"longitude":7.9739149,"master\_project\_id":null,"name":"Rönkhausen Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Mark-E","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Efficiency: 75%","primary\_reference":"http://www.enervie-gruppe.de/desktopdefault.aspx/tabid-51/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":140000,"size\_kwh":4.91666666666667,"size\_kwh\_hours":4,"size\_kwh\_minutes":55.0,"state":"North Rhine-Westphalia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:49:33Z","updated\_at\_by\_admin":"2014-07-11T19:24:59Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Escher-Wyss, Sulzer","zip":""}},{"project":{"announcement\_on":"2022-08-14","approval\_status":0,"city":"Forbach","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@enbw.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-14T19:35:58Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Commissioned in 1926, Schwarzenbach is the largest of four hydroelectric power stations known together as Rudolf-Fettweis-Werk. It is the only pumped storage power station of the four, and it contains two Pelton turbines.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":523,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/523/Schwarzenbachtalsperre.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/523/thumb\_Schwarzenbachtalsperre.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/523/partner\_Schwarzenbachtalsperre.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":48.6559308,"longitude":8.3262275,"master\_project\_id":null,"name":"Schwarzenbach Pumped Storage Power 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Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":44000,"size\_kwh":4.5,"size\_kwh\_hours":4,"size\_kwh\_minutes":30.0,"state":"Baden-Württemberg","status":"Operational","street\_address":"Schwarzenbachtalsperre","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:49:28Z","updated\_at\_by\_admin":"2013-12-12T23:04:53Z","updated\_by":null,"updated\_by\_email":null,"utility":"Energie Baden-Württemberg (EnBW)","utility\_type":"Investor 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storage.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":524,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/524/sorp.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/524/thumb\_sorp.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/524/partner\_sorp.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":51.3510404,"longitude":7.9680569,"master\_project\_id":null,"name":"Sorpesee Pumped Storage Power 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The traditional hydroelectric component is rated at 3.3 MW while the pumped storage component is rated at 35 MW while generating and 25 MW while pumping. The plant is a member of the Jansen Power Plant Group, which utilizes the waters of the Pfreimd and includes two other hydroelectric power plants, Reisach and Trausnitz.\r\n\r\nTanzmühle is connected via tunnel to two elevated reservoirs, the off-stream Rabenleite Reservoir and the Kainzmühl Reservoir, which is created by a dam upstream on the Pfreimd. This allows Tanzmühle to draw water from one reservoir to generate electricity and pump it up to the other reservoir for storage. The plant's traditional hydroelectric component draws running water from the Pfreimd and releases it back into the river. It may later be pumped up to the Rabenleite Reservoir by Reisach Power Plant or used to generate electricity by the traditional hydroelectric plant, Trausnitz. \r\n\r\nSee this link for an interesting animation of how the Jansen Power Plant group works: http://goo.gl/IxfCJI","developer":"Energieversorgung Ostbayern (OBAG)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":525,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/525/Tanzm\_hle.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/525/thumb\_Tanzm\_hle.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/525/partner\_Tanzm\_hle.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":49.552216,"longitude":12.281256,"master\_project\_id":"520","name":"Tanzmühle Pumped Storage Power Plant","om\_contractor":"Electrabel","organization":null,"owner\_1":"GDF Suez","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.gdfsuez-energie.de/static/de/erzeugung/pfremid/pfreimd-start.swf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":35000,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Bavaria","status":"Operational","street\_address":"Tanzmühle","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:49:16Z","updated\_at\_by\_admin":"2014-07-17T21:37:43Z","updated\_by":null,"updated\_by\_email":null,"utility":"GDF Suez","utility\_type":"Investor Owned","vendor\_company":"","zip":"92723"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Waldeck-Frankenberg","commissioning\_on":"2022-04-20","companion":"","construction\_on":"2022-04-01","contact\_city":"","contact\_country":"","contact\_email":"carsten.thomsen-bendixen@eon.com","contact\_info\_visible":false,"contact\_name":"Carsten Thomsen-Bendixen","contact\_phone":"+49 2 11-45 79-5 44","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-14T21:38:10Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Waldeck Pumped Storage Scheme consists of two power plants, Waldeck 1 and Waldeck 2. Each station draws water from a separate upper reservoir and empties into Affolderner lake. Both plants were built to shift energy from off-peak demand hours to peak demand hours.\r\n\r\nWaldeck 1 was commissioned in 1932 and operated with its original four Francis turbines for 74 years. However, in April 2006, the plant was shut down and construction began on a new power station. Two of the old turbines were scrapped and two were refurbished for the new powerhouse. A new 70 MW turbine was added and now Waldeck 1's three turbines combine for a capacity of 140 MW. The new Waldeck 1 was inaugurated on April 20, 2010.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":526,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/526/Waldeck\_I.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/526/thumb\_Waldeck\_I.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/526/partner\_Waldeck\_I.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":51.1624468,"longitude":9.064572,"master\_project\_id":null,"name":"Waldeck I Pumped Hydro Power Plant","om\_contractor":"EWK GmbH","organization":null,"owner\_1":"E·ON","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.eon.com/de/geschaeftsfelder/stromerzeugung/wasser/wasserkraftwerke/standorte.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":140000,"size\_kwh":3.4,"size\_kwh\_hours":3,"size\_kwh\_minutes":24.0,"state":"Hesse","status":"Operational","street\_address":"Affolderner Lake","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:49:09Z","updated\_at\_by\_admin":"2013-12-12T22:39:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"E·ON","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Waldeck-Frankenberg","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"carsten.thomsen-bendixen@eon.com","contact\_info\_visible":false,"contact\_name":"Carsten Thomsen-Bendixen","contact\_phone":"+49 2 11-45 79-5 44","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-08-14T21:58:09Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Waldeck Pumped Storage Scheme consists of two power plants, Waldeck 1 and Waldeck 2. Each station draws water from a separate upper reservoir and empties into Affolderner lake. Both plants were built to shift energy from off-peak demand hours to peak demand hours.\r\n\r\nWaldeck 2 contains two machine sets with Francis turbines rated at 140 MW each. E·ON has been planning to add 300 MW of capacity to Waldeck 2 since 2010, but construction has yet to begin.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":527,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/527/Waldeck\_I.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/527/thumb\_Waldeck\_I.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/527/partner\_Waldeck\_I.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":51.1624468,"longitude":9.064572,"master\_project\_id":null,"name":"Waldeck II","om\_contractor":"EWK GmbH","organization":null,"owner\_1":"E·ON","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.eon.com/de/geschaeftsfelder/stromerzeugung/wasser/wasserkraftwerke/standorte.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":480000,"size\_kwh":7.16666666666667,"size\_kwh\_hours":7,"size\_kwh\_minutes":10.0,"state":"Hesse","status":"Operational","street\_address":"Affolderner Lake","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:49:04Z","updated\_at\_by\_admin":"2013-12-12T22:34:12Z","updated\_by":null,"updated\_by\_email":null,"utility":"E·ON","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Newark","commissioning\_on":"2022-09-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"tgage@evgrid.com","contact\_info\_visible":false,"contact\_name":"Tom Gage","contact\_phone":"909-599-3510","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-08-19T17:31:58Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Grid on Wheels is the first ever use of electric vehicle batteries, chargers, and charging infrastructure to\r\nparticipate in and generate revenue from open ancillary services markets. This project is the culmination of\r\ninnovations and developments over the past 15 years including:\r\n\r\n• Bi-directional charging for EVs at up to 18 kW per vehicle\r\n• Remote control of EV charging\r\n• Third-party aggregation of EVs for the purpose of providing ancillary services\r\n• Real-time communication between vehicle, aggregator, and ISO/RTO\r\n• Rates, regulation, standards, and tariffs enabling market participation from EVs downstream of the\r\nmeter\r\n\r\nGrid on Wheels is deployed at University of Delaware by eV2g, a joint venture between the University and\r\nNRG. The project uses 30 BMW MINI Es modified for V2G and provided by EV Grid. The project achieved the\r\nfirst successful fulfillment of and earned payment for grid regulation in PJM's ancillary services market in\r\nMarch, 2013. Since then Grid on Wheels has been increasing the hours and power it bids into the market.\r\nUltimately, the 30 EVs in the project will be able to provide up to 300 kW or more of grid-up and grid-down\r\nregulation.","developer":"University of Delaware","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":530,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/530/Grid\_on\_Wheels\_Pic.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/530/thumb\_Grid\_on\_Wheels\_Pic.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/530/partner\_Grid\_on\_Wheels\_Pic.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.6777096,"longitude":-75.7542004,"master\_project\_id":null,"name":"Grid on Wheels","om\_contractor":"","organization":"EV Grid","owner\_1":"University of Delaware","owner\_2":"NRG","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://evgrid.com/news-release-ev-grid-supplies-30-mini-es-for-grid-on-wheels-project/","primary\_reference1":"http://grid-on-wheels.com/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Ramping ","service\_use\_case\_4":"Transportation Services","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":360,"size\_kwh":2.5,"size\_kwh\_hours":2,"size\_kwh\_minutes":30.0,"state":"Delaware","status":"Operational","street\_address":"210 S College Ave.","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-05T05:51:48Z","updated\_at\_by\_admin":"2015-03-16T18:56:19Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"NRG Energy","utility\_type":"Investor Owned","vendor\_company":"EV Grid","zip":""}},{"project":{"announcement\_on":"2022-08-20","approval\_status":1,"city":"Philadelphia","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Philadelphia","contact\_country":"United States","contact\_email":"godonnell@sshco.com","contact\_info\_visible":false,"contact\_name":"Gene Odonnell","contact\_phone":"(215) 545-0002","contact\_state":"PA ","contact\_street\_address":"1500 Walnut Street, Suite 203","contact\_zip":"19102","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-08-20T19:13:56Z","created\_by\_id":17,"debt\_investor":"","decommissioning\_on":null,"desc":"1500 Walnut was originally supposed to replace an ineffective cooling system. Ice storage was justified by reduced demand charges. As caps came off in PA, the demand charges were reduced and demand savings became hard to find.\r\n\r\nTozour Energy and Viridity came in to modify the system to change the system to operate optimally as a virtual generator changing the controls to focus the entire building electrical systems, including the IceBank energy storage, to be able to transparently shed load upon a call from the electrical grid (PJM).\r\n\r\n1500 Walnut currently participates in the PJM Capacity Market and also the PJM Economic Energy Market. Dependent on the equipment responsiveness and controllability of 1500 Walnut, the project could be considered for PJM Ancillary markets – Synch Reserve and/or Regulation in upcoming contracts.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":531,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/531/sample.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/531/thumb\_sample.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/531/partner\_sample.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.948958,"longitude":-75.166447,"master\_project\_id":null,"name":"1500 Walnut","om\_contractor":"","organization":"N/A","owner\_1":"N/A","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.calmac.com/1500-walnut-street-smart-grid-building","primary\_reference1":"http://www.youtube.com/watch?v=CZgn7rlqbsw&feature=youtu.be","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":210,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Pennsylvania","status":"Operational","street\_address":"1500 Walnut Street,","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-04T02:21:35Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":"19102"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Field","commissioning\_on":"2022-07-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"helen.whittaker@bchydro.com ","contact\_info\_visible":true,"contact\_name":"Helen Whittaker ","contact\_phone":"604-623-4312 ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":12646717.0,"cost\_OPEX":null,"country":"Canada","created\_at":"2013-08-21T19:02:37Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"The 1 MW NaS battery is installed 50 km along 25 kV feeder from Golden, BC substation close to Field, BC.\r\nBattery system is able to operate islanded from the grid in order to provide back-up power to Field in the event of a feeder outage and is also set up to discharge over the peak hours from 4pm to 8pm every day and recharge over night.\r\nThe system uses S&C's Storage Management System and Intellirupter device to manage the charge and discharge and isolate the system for islanding. \r\nTelecommunications between the intellirupter and the storage management system is provided by 900 MHz SpeedNet radio. Telecommunications back to BC Hydro operations is provided by satellite. SCADA points are mapped to BC Hydro's EMS system for monitoring and control.","developer":"","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":6084166.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Natural Resources Canada’s Clean Energy Fund","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":532,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/532/bc\_hydro\_golden\_and\_field\_NaS\_ess.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/532/thumb\_bc\_hydro\_golden\_and\_field\_NaS\_ess.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/532/partner\_bc\_hydro\_golden\_and\_field\_NaS\_ess.jpg"}},"integrator\_company":"S&C Electric Company","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.395609,"longitude":-116.486525,"master\_project\_id":null,"name":"BC Hydro Field Battery Energy Storage","om\_contractor":"","organization":"BC Hydro","owner\_1":"BC Hydro","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"July 15, 2022 BC Hydro experienced their first power outage since connecting the battery to the grid. The system recognized the outage and switched to battery power, supplying the town’s electricity needs (about 200-300 kW) for 7.3 hours. Once power was restored, the system automatically disconnected the battery and reconnected the town to the distribution grid. There have been seven outages since and the BESS has performed as intended during each. In four cases, Field was supported in islanded mode for 7–10 hours. The BESS also discharges from 4PM to 8PM every day and charges after 10 PM to provide peak shaving functionality for the Golden substation. ","primary\_reference":"https://www.bchydro.com/energy-in-bc/projects/field-battery.html","primary\_reference1":"http://www.elp.com/articles/2014/02/s-c-electric-co-energy-storage-system-helps-bc-hydro-fix-power-outages.html","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1000,"size\_kwh":6.5,"size\_kwh\_hours":6,"size\_kwh\_minutes":30.0,"state":"British Columbia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-16T05:24:00Z","updated\_at\_by\_admin":"2014-11-07T21:35:50Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"BC Hydro ","utility\_type":"Federally Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Villefranche-de-Panat","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"communication-rd@edf.fr","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2013-08-21T21:26:04Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Alrance is a pumped storage hydroelectric power station in the commune of Alrance, Aveyron, southern France. It lies at the head of the Lac de Villefranche-de-Panat and draws water through 10.8 km long penstocks from the Lac de Pareloup.","developer":"Électricité de France (EDF)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":533,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":44.1035517,"longitude":2.6946591,"master\_project\_id":null,"name":"Alrance Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Électricité de France (EDF)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Annual Generation: 39,442 MWh","primary\_reference":"http://www.hydrelect.info/articles.php?lng=fr&pg=1163","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":11000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Aveyron","status":"Operational","street\_address":"Lac de Villefranche-de-Panat","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:48:58Z","updated\_at\_by\_admin":"2013-08-21T21:52:21Z","updated\_by":null,"updated\_by\_email":null,"utility":"Électricité de France (EDF)","utility\_type":"Investor Owned","vendor\_company":"","zip":"12430"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Le Truel","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"communication-rd@edf.fr","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2013-08-21T22:58:28Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Le Pouget is a hydroelectic power station located at Le Truel, on the River Tarn, in the department of Aveyron in France. It uses the difference in height between the artificial lakes of Villefranche-de-Panat and Pareloup on the Lévézou plateau and the river 500m below. It ranks as the 16th largest station in France. It is part of the complex system that connects the rivers Alrance, Ceor, Viaur, Bage and Violou with the Tarn.\r\n\r\nThree of the power plant's five turbines are Pelton turbines that were commissioned when the plant opened in 1952. Their combined capacity is 128 MW. The other two turbines were added in 1983 when the plant added pumped storage capabilities. The fourth turbine is the most powerful gravity-fed Francis turbine in France, rated at 275 MW. The fifth turbine is the only reversible pump-turbine in the group, with a generating capacity of 41.5 MW and a pumping capacity of 32.92 MW.","developer":"Électricité de France (EDF)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":534,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/534/le\_pouget.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/534/thumb\_le\_pouget.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/534/partner\_le\_pouget.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":44.059565,"longitude":2.768856,"master\_project\_id":null,"name":"Le Pouget Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Électricité de France (EDF)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Annual generation: 300 GWh","primary\_reference":"http://hydroweb5.free.fr/hydroweb.php?page=hydro\_centrales.php&HWC=4","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":445000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Aveyron","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:48:51Z","updated\_at\_by\_admin":"2014-08-14T14:06:15Z","updated\_by":null,"updated\_by\_email":null,"utility":"Électricité de France (EDF)","utility\_type":"Investor Owned","vendor\_company":"Neyrpic (Alstom)","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Argentat","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"communication-rd@edf.fr","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2013-08-21T23:32:35Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The power plant is located at the Argentat Dam on the Dordogne River and uses bulb turbines. The plant's technical features include foundations 34 meters high, a crest length of 196 meters, a crest width of 27.35 meters, a base width of 35.50 meters, and a dam volume of 85,000 m3.","developer":"Électricité de France (EDF)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":535,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/535/argentat.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/535/thumb\_argentat.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/535/partner\_argentat.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":45.10418,"longitude":1.953746,"master\_project\_id":null,"name":"Argentat Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Électricité de France (EDF)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://fr.wikipedia.org/wiki/Barrage\_d'Argentat","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":48000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Correze","status":"Operational","street\_address":"Barrage d'Argentat","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:48:45Z","updated\_at\_by\_admin":"2013-12-06T23:38:04Z","updated\_by":null,"updated\_by\_email":null,"utility":"Électricité de France (EDF)","utility\_type":"Investor Owned","vendor\_company":"Voest, Alsthom-Jeumont","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Montézic","commissioning\_on":"2022-12-01","companion":"","construction\_on":"2022-08-01","contact\_city":"","contact\_country":"","contact\_email":"communication-rd@edf.fr","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2013-08-26T04:03:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Montézic power plant operates with four reversible pump-turbines and a 423 meter elevation drop between the upper reservoir and the subterranean powerhouse.","developer":"Électricité de France (EDF)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":536,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/536/Montezic\_\_1\_.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/536/thumb\_Montezic\_\_1\_.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/536/partner\_Montezic\_\_1\_.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":44.709426,"longitude":2.640329,"master\_project\_id":null,"name":"Montézic Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Électricité de France (EDF)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://globalenergyobservatory.org/geoid/42240","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":910000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Aveyron","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:48:40Z","updated\_at\_by\_admin":"2013-12-15T18:37:56Z","updated\_by":null,"updated\_by\_email":null,"utility":"Électricité de France (EDF)","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Revin","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Anne.Laszlo@edf.fr","contact\_info\_visible":false,"contact\_name":"Anne Laszlo","contact\_phone":"+03 89 35 22 15","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2013-08-26T04:50:05Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The municipality of Revin's underground pumped storage power plant rests 250 meters below its upper reservoir, Basin de Marquisades, and empties into Basin de Whitaker. It shifts energy to hours of peak demand by pumping water from Whitaker to Marquisades when electricity demand is low and generating electricity when demand is high.\r\n\r\nThe plant's four reversible pump-turbines combine for a rated capacity of 800 MW and can be ready to generate electricity within two minutes. The power plant is capable of supporting the grid in the case of a voltage drop due for example to the crash of a conventional power plant.","developer":"Électricité de France (EDF)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":537,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/537/Revin.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/537/thumb\_Revin.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/537/partner\_Revin.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":49.9218041,"longitude":4.6036679,"master\_project\_id":null,"name":"Revin Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Électricité de France (EDF)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Generation in 2010: 1,000 GWh; Starts in 2010: 5,310","primary\_reference":"http://energie.edf.com/fichiers/fckeditor/Commun/En\_Direct\_Centrales/Hydraulique/Centres/est/publications/documents/fiche\_identite\_geh\_revin%20\_2011%20.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":800000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Ardennes","status":"Operational","street\_address":"Basin de Whitaker","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:48:34Z","updated\_at\_by\_admin":"2013-08-27T20:31:37Z","updated\_by":null,"updated\_by\_email":null,"utility":"Électricité de France (EDF)","utility\_type":"Investor Owned","vendor\_company":"Neyrpic, Alsthom-Jeumont","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Valmeinier","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"communication-rd@edf.fr","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2013-08-26T17:27:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Commissioned in 1986, Super Bissorte consists of two underground facilities, Bissorte 2 and Bissorte 3. B2 houses four 150 MW reversible Francis pump-turbines while B3 houses one 150 MW Pelton turbine. The powerhouses lay an extraordinary 1,160 meters below their upper reservoir.","developer":"Électricité de France (EDF)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":538,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":45.183414,"longitude":6.478624,"master\_project\_id":null,"name":"Super Bissorte Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Électricité de France (EDF)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual generation: 165 GWh; Annual CO2 saved: 240,000 tons","primary\_reference":"http://energie.edf.com/fichiers/fckeditor/Commun/En\_Direct\_Centrales/Hydraulique/Centres/Les\_Alpes/publications/documents/bissorte%20corrigee.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":748000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Savoie","status":"Operational","street\_address":"L'Arc","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:48:28Z","updated\_at\_by\_admin":"2013-08-26T19:55:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"Électricité de France (EDF)","utility\_type":"Investor Owned","vendor\_company":"Alstom","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Le Cheylas","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"com-upalpes@edf.fr","contact\_info\_visible":false,"contact\_name":"Catherine YAZBEK","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2013-08-26T18:06:57Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Commissioned in 1979, Cheylas Pumped Storage Power Plant operates with two reversible pump-turbines rated at 240 MW each, the most powerful in France. The elevation drop between the upper reservoir, Bassin du Flumet, and the powerhouse is 261 meters, and the power plant empties into Bassin du Cheylas.\r\n\r\nIn December, 2012, the European Commission awarded a $21.55 million grant to a consortium, which includes Alstom, Electricite de France (EDF), Elia, Imperial College, DNV Kema and Algoe, to add 70 MW of capacity to Cheylas by converting it to a variable-speed pumped storage plant.","developer":"Électricité de France (EDF)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":539,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/539/Cheylas-centrale-photo-puit.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/539/thumb\_Cheylas-centrale-photo-puit.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/539/partner\_Cheylas-centrale-photo-puit.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":45.3815081,"longitude":5.9869144,"master\_project\_id":null,"name":"Le Cheylas Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Électricité de France (EDF)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Annual generation: 750 GWh","primary\_reference":"http://hydroweb5.free.fr/hydroweb.php?page=hydro\_centrales.php&HWC=9","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":480000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Isère","status":"Operational","street\_address":"Bassin du Cheylas","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:48:23Z","updated\_at\_by\_admin":"2013-08-26T19:54:26Z","updated\_by":null,"updated\_by\_email":null,"utility":"Électricité de France (EDF)","utility\_type":"Investor Owned","vendor\_company":"Alstom","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Moutiers","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"communication-rd@edf.fr","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2013-08-26T19:50:55Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"La Coche Pumped Storage Power Plant contains 4 reversible Francis pump-turbines and utilizes a 927 meter drop between the upper reservoir and the turbines. 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It draws its energy from the force of the tide by using a tidal barrage. Instead of damming water on one side like a conventional dam, a tidal barrage first allows water to flow into a bay or river during high tide, and releasing the water back during low tide. This is done by measuring the tidal flow and controlling the sluice gates at key times of the tidal cycle. Turbines are then placed at these sluices to capture the energy as the water flows in and out.\r\n\r\nThe station's 24 reversible bulb pump-turbines are used to pump water into the river basin at high tide (for ebb generation). This energy is more than returned during generation, because power output is strongly related to the head. If water is raised 2 ft (61 cm) by pumping on a high tide of 10 ft (3 m), this will have been raised by 12 ft (3.7 m) at low tide. The cost of a 2 ft rise is returned by the benefits of a 12 ft rise. This is because the correlation between the potential energy is not a linear relationship, but rather, is related by the square of the tidal height variation.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":545,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/545/la\_rance.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/545/thumb\_la\_rance.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/545/partner\_la\_rance.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":48.6180022,"longitude":-2.0238876,"master\_project\_id":null,"name":"La Rance Tidal Power Station","om\_contractor":"","organization":null,"owner\_1":"Électricité de France (EDF)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Generation: 500 GWh","primary\_reference":"http://energie.edf.com/hydraulique/energies-marines/carte-des-implantations-marines/usine-maremotrice-de-la-rance/presentation-51516.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":240000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Ille-et-Vilaine","status":"Operational","street\_address":"Rance Tidal Power Station","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:48:10Z","updated\_at\_by\_admin":"2013-08-27T04:45:55Z","updated\_by":null,"updated\_by\_email":null,"utility":"Électricité de France (EDF)","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Orbey","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"communication-rd@edf.fr","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2013-08-27T20:28:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-07-01","desc":"Commissioned in 1933, Lac Noir was France's first pumped storage hydroelectric power plant. \r\n\r\nThe power plant has been offline since the engine room flooded in 2002. The owner, EDF, has announced plans to build a new 55 MW underground pumped storage plant adjacent to the old one. Construction is expected to last six years and cost over €70 million.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":546,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/546/lac\_noir.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/546/thumb\_lac\_noir.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/546/partner\_lac\_noir.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.109765,"longitude":7.103163,"master\_project\_id":null,"name":"Lac Noir Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Électricité de France (EDF)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.usinenouvelle.com/article/edf-investit-dans-une-centrale-au-lac-noir.N162899","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - 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This water is used primarily for river regulation and hydroelectric power generation. The power plant's rated capacity is 720 MW, which comes from three traditional 120 MW Francis turbines and two 180 reversible Francis pump-turbines. The annual generation from all five turbines is 1,160 GWh. \r\n\r\nInitial construction on the dam began in 1974 and it was complete in 1980. The first of the power plant's generators was commissioned in 1980 and the last by 1991.\r\n\r\nhttp://www.egat.co.th/en/index.php?option=com\_content&view=article&id=60&Itemid=117\r\n\r\nhttp://www.mhi.co.jp/en/products/category/water\_turbine\_plant.html","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":548,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/548/srinagarind.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/548/thumb\_srinagarind.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/548/partner\_srinagarind.JPG"}},"integrator\_company":"MHI","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":14.4049116,"longitude":99.1280098,"master\_project\_id":null,"name":"Srinagarind Hydroelectric Power Plant","om\_contractor":"","organization":null,"owner\_1":"Electricity Generating Authority of Thailand","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.egat.co.th/en/index.php?option=com\_content&view=article&id=60&Itemid=117","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":720000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Kanchanaburi","status":"Operational","street\_address":"Srinagarind Dam","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:47:14Z","updated\_at\_by\_admin":"2014-08-12T21:03:02Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Hitachi Mitsubishi Hydro Corporation","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Amphoe Sam Ngao","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"EGATCALLCENTER@egat.co.th","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"+66 (0) 5554 9510 ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Thailand","created\_at":"2013-08-27T22:32:06Z","created\_by\_id":1,"debt\_investor":"Japan International Cooperation Agency (JICA)","decommissioning\_on":null,"desc":"The hydroelectric plant situated at the base of the Bhumibol Dam has a total installed capacity of 743.8 MW from seven conventional generating units (Units 1-6 of 76.3 MW each and Unit 7 of 115 MW) and one reversible pump turbine unit of 171 MW. Bhumibol Unit 8 has a two-fold function, serving as a water pump during the off-peak hours to recapture water from the lower reservoir and pump it back up to the upper reservoir; and also operating as a generator to produce electricity during peak periods. Unit 8 was commissioned in 1996.\r\n\r\nConstruction on the dam commenced in 1952 and the first two turbines were commissioned in 1964. Six additional units were installed in later years to cope with the country’s rapid growth in electricity demand.\r\n\r\nhttp://www.sustainablehydropower.org/site/social/schemes/bhumibol.html","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":549,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/549/bhumibol.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/549/thumb\_bhumibol.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/549/partner\_bhumibol.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":17.2440808,"longitude":99.0004951,"master\_project\_id":null,"name":"Bhumibol Hydroelectric Power Plant","om\_contractor":"","organization":null,"owner\_1":"Electricity Generating Authority of Thailand","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.egat.co.th/en/index.php?option=com\_content&view=article&id=50&Itemid=117","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":171000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Tak","status":"Operational","street\_address":"Bhumibol Dam","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:47:08Z","updated\_at\_by\_admin":"2013-12-06T21:14:11Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Flattach","commissioning\_on":"2022-06-01","companion":"","construction\_on":"2022-06-01","contact\_city":"","contact\_country":"","contact\_email":"gerald.berger@kelag.at","contact\_info\_visible":false,"contact\_name":"Gerald Berger","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2013-08-29T20:42:42Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Feldsee Pumped Storage Power Plant can be used flexibly. When electricity demand is high, it draws water from the upper reservoir, Feldsee, and generates electricity. If nearby wind farms and hydroelectric power plants generate more electricity than customers need at the moment, Feldsee uses the excess energy to pump water from the lower reservoir, Wurten, to Feldsee to be stored and eventually converted back into electricity. ","developer":"KELAG","electronics\_provider":"ABB","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":551,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/551/feldsee.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/551/thumb\_feldsee.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/551/partner\_feldsee.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":46.9985746,"longitude":13.0418733,"master\_project\_id":null,"name":"Feldsee Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"KELAG","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Generation: 300 GWh","primary\_reference":"http://konzern.kelag.at/content/page\_kraftwerk-feldsee-9593.jsp","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Load Following (Tertiary Balancing)","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":140000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Karnten","status":"Operational","street\_address":"Wurtenspeicher","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:47:00Z","updated\_at\_by\_admin":"2013-08-29T20:46:10Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"VA Tech","zip":"9831"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Lavamünd","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"gerald.berger@kelag.at","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Rudis","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2013-09-04T21:27:07Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The pumped storage power station Koralpe has a production capacity of 50 MW and a pumping capacity of 35 MW. The engine and pump houses are near Lavamünd on the Bank of the river Drava.\r\n\r\nIn 2011, the plant was converted to pump storage operation. A 35m deep shaft was dug next to the powerhouse and a new pump installed along with a connection to the existing penstock. The project cost €23mn and doubled the power plant's annual production to 160 million kWh.","developer":"KELAG","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":552,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/552/KH\_Koralpe2\_web.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/552/thumb\_KH\_Koralpe2\_web.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/552/partner\_KH\_Koralpe2\_web.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":46.6407766,"longitude":14.9488018,"master\_project\_id":null,"name":"Koralpe Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"KELAG","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Generation: 160 GWh","primary\_reference":"http://konzern.kelag.at/content/page\_pumpe-koralpe-9594.jsp","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":50000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Kärnten","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:46:54Z","updated\_at\_by\_admin":"2013-11-16T23:07:46Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Voith Siemens Hydro Power Generation, Sulzer Escher Wyss","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Gaschurn","commissioning\_on":"2022-05-01","companion":"","construction\_on":"2022-03-01","contact\_city":"","contact\_country":"","contact\_email":"info@illwerke.at","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"VA TECH","contractor\_2":"Swietelsky","contractor\_3":"Jager Bau, Torno, Beton- und Monierbau, Alpine Mayreder, Zublin, Voith Siemens Hydro","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2013-09-05T23:15:02Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Kops 2 is an underground pumped storage power station located in the Austrian Alps. It shares its upper basin, Kops Reservoir, with Kops 1, a traditional hydroelectric power plant, and uses Rifa Reservoir as its lower basin. Kops 2 contains three Pelton-type machine sets, each with a generating capacity of 175 MW and a pumping capacity of 150 MW.\r\n\r\nThe total investment was around €400 million.","developer":"Voralberger Illwerke AG","electronics\_provider":"ABB","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":553,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/553/kops.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/553/thumb\_kops.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/553/partner\_kops.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":46.9858102,"longitude":10.0265864,"master\_project\_id":null,"name":"Kops II Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Voralberger Illwerke AG","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Production: 600 GWh","primary\_reference":"http://www.kopswerk2.at/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":525000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Vorarlberg","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:46:48Z","updated\_at\_by\_admin":"2013-09-05T23:43:18Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"VA TECH","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Vandans","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@illwerke.at","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2013-09-05T23:43:31Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Rodund 2 is directly connected to Rodund 1, and both are located in the Austrian Montafon where they utilize the 350 meter height difference between the Latschau and Tschagguns Dams. Rodund 2 operates with one machine set, a reversible pump-turbine, while Rodund 1 has four conventional turbines. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":554,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/554/rodundwerkII\_techn\_daten\_rdax\_192x257.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/554/thumb\_rodundwerkII\_techn\_daten\_rdax\_192x257.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/554/partner\_rodundwerkII\_techn\_daten\_rdax\_192x257.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":47.0851253,"longitude":9.8811055,"master\_project\_id":"799","name":"Rodundwerk II Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Voralberger Illwerke AG","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.illwerke.at/inhalt/at/195.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":295000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Tyrol","status":"Operational","street\_address":"Anton-Ammann-Straße","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:46:42Z","updated\_at\_by\_admin":"2014-06-16T17:59:06Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Voith, Voest, Elin","zip":"6773"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Stausee Mooserboden","commissioning\_on":"2022-09-07","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"florian.seidl@verbund.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"G Hinteregger & Söhne, Porr Tunnelbau, Östu-Stettin Hoch- und Tiefbau, Swietelsky Bau Tunnelbau","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2013-09-06T03:54:55Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Limberg II is a member of the Kaprun Group, a group of hydroelectric power plants in Hohen Tauern in Kaprun valley. The plant utilizes the two existing reservoirs Wasserfallboden and Mooserboden with, a mean elevation drop of 365m. \r\n\r\nLimberg II increased the the Kaprun Group's capacity enough that it can now cover about 10% of Austria's peak. The project's total investment cost was approximately €405 million.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":555,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":47.1592991,"longitude":12.7125707,"master\_project\_id":null,"name":"Limberg II Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Verbund","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.verbund.com/pp/de/pumpspeicherkraftwerk/kaprun-limberg2","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":480000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Salzburg","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:46:36Z","updated\_at\_by\_admin":"2013-11-13T20:56:02Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Voith, VA TECH","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Hohen Tauern","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"gerald.berger@kelag.at","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2013-09-06T04:15:27Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Kraftwerksgruppe Fragant consists of a system of four storage power stations and three smaller run-of-river power stations built between 1964 and 1985. The Innerfragant powerhouse, located at 1,200m above sea level, is the hydraulic center of the entire power station group.\r\n\r\nSource: http://industcards.com/ps-austria.htm","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":556,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":47.1374819,"longitude":12.3273397,"master\_project\_id":null,"name":"Oschenik Innerfragant Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"KELAG","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://de.wikipedia.org/wiki/Liste\_%C3%B6sterreichischer\_Kraftwerke#FN\_.2A.29","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":108000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Salzburg","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:46:30Z","updated\_at\_by\_admin":"2013-12-14T22:19:07Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Voith","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Vodná nádrz Čierny Váh","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"infovet@enel.com","contact\_info\_visible":false,"contact\_name":"Enel's Slovenské Elektrárne Hydro Division","contact\_phone":"+421 1 1032 6542","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Vahostav JSC","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Slovakia","created\_at":"2013-09-06T18:24:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The pumped storage hydro power plant (PSHPP) Čierny Váh is situated in the valley of the river Čierny Váh, approximately 10 km above its confluence with the Biely Váh River near the Kráľová Lehota municipality, which is a part of the Low Tatras National Park protected zone. It is a construction with daily water accumulation that participates in the functioning of the frequency regulation and of the distribution of electricity to the grid. This hydraulic structure consists of four parts: an upper and a lower reservoir, penstocks and a power station. The lower reservoir was created by means of damming up the valley of the Čierny Váh by a 375 m long dam. Its capacity is 5.1 million m3. The level fluctuates by 7.45 m between elevations 726.00 – 733.45 m. The upper reservoir of an irregular shape is situated between the valleys of the Biely Váh and the Čierny Váh. It has a maximum capacity of 3.7 million m3 of water and the level fluctuates by 25 m between the elevation points 1160 – 1135 m above sea level. The sealing of the slopes and of the bottom is provided by one layer of asphalt concrete sealing blanket with a surface of approximately 200,000 m2. Underneath the reservoir, there is an inspection tunnel that should collect the potential seepages from the reservoir bottom and slopes. The hydraulic connection of the upper and lower reservoir is ensured via three pressure penstocks which have an internal diameter of 3.8 m. In the valley, they split into pipes that transport the water to the two turbines and outlets of water from the two accumulation pumps. The maximum head between the upper and the lower reservoirs is 434 m. The lower reservoir dam includes also a power station with a control room. There are six pumping turbo aggregates installed that comprise a motor generator, a Francis turbine and an accumulation pump. When 6 accumulation pumps are in operation, it takes 8 hours to pump the water into the upper reservoir.\r\n\r\nSource: http://www.skcold.sk/priehrady/nova\_databaza\_priehrad/pve\_cierny\_vah/","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":557,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/557/Cierny.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/557/thumb\_Cierny.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/557/partner\_Cierny.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":49.011138,"longitude":19.9273911,"master\_project\_id":null,"name":"Čierny Váh Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Slovenské Elektrárne","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Generation: 370.8 GWh","primary\_reference":"http://www.seas.sk/sk/elektrarne/typy-elektrarni/vodne/cierny-vah","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":735160,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Liptov","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:46:24Z","updated\_at\_by\_admin":"2013-09-06T18:27:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"CKD, Skoda","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Dobšiná","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"infovet@enel.com","contact\_info\_visible":false,"contact\_name":"Enel's Slovenské Elektrárne Hydro Division","contact\_phone":"+421 1 1032 6542","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Slovakia","created\_at":"2013-09-06T18:38:10Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Slovakia´s first larger pumped storage power plant, the Dobšiná power plant has been operated since 1953. Following its reconstruction in 2003, its power has increased to 2 x 12 MW. It has a horizontal layout - at one axis it has in the middle a motor-generator and on the one side a Francis turbine and on the other a high-pressure pump. It is also interesting in that it moves water from the Hnilec catchment to the Slaná catchment area.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":558,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":48.8207511,"longitude":20.3656619,"master\_project\_id":null,"name":"Dobšiná I Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Slovenské Elektrárne","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Generation: 60.03 GWh","primary\_reference":"http://www.seas.sk/en/power-plants/fuel-type/hydro/dobsina-hpp","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":24000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Kosice","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:46:18Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Sulzer, Skoda","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Dukovany","commissioning\_on":"2022-01-01","companion":"Dukovany Nuclear Power Plant","construction\_on":null,"contact\_city":"","contact\_country":"Czech Republic","contact\_email":"martin.schreier@cez.cz ","contact\_info\_visible":false,"contact\_name":"Martin Schreier (press officer)","contact\_phone":"(+420) 211 042 612","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Czech Republic","created\_at":"2013-09-07T00:19:27Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Dalešice waterworks was built as a part of the nearby Dukovany Nuclear Power Station project. It includes the Dalešice water reservoir with the capacity of 127 million m3 of water, the Mohelno equalization basin, the Dalešice Pumped-Storage Hydroelectric Power Station, and the Mohelno run-off-river hydroelectric power station.\r\n\r\nThe pumped-storage hydroelectric power station is equipped with four sets of reversing Francis turbines (112.5 MW ea) for a 90 m head. Synchronous generators with 13.8 kV voltage and two-way rotation are used in both the turbine and storage pumping operation. The generator voltage is transformed to 420 kV outgoing voltage by unit transformers. Total capacity is 2,300 MWh.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":559,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/559/EDA-20140717.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/559/thumb\_EDA-20140717.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/559/partner\_EDA-20140717.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":49.124395,"longitude":16.124147,"master\_project\_id":null,"name":"Dalešice Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"ČEZ Group","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.cez.cz/en/power-plants-and-environment/hydraulic-power-plants/dalesice.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":450000,"size\_kwh":5.11666666666667,"size\_kwh\_hours":5,"size\_kwh\_minutes":7.0,"state":"Vysočina","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:46:12Z","updated\_at\_by\_admin":"2014-07-17T14:04:36Z","updated\_by":null,"updated\_by\_email":null,"utility":"ČEZ Group","utility\_type":"Investor Owned","vendor\_company":"CKD, Skoda","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Loučná Desnou","commissioning\_on":"2022-06-20","companion":"","construction\_on":"2022-05-01","contact\_city":"","contact\_country":"Czech Republic","contact\_email":"martin.schreier@cez.cz","contact\_info\_visible":false,"contact\_name":"Martin Schreier (press officer)","contact\_phone":"(+420) 211 042 612 ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Energotis","contractor\_2":"Ingstav","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Czech Republic","created\_at":"2013-09-07T00:40:02Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Dlouhé Stráně Hydroelectric Power Station is situated in Moravia, near Loučná nad Desnou in the district of Šumperk. It has the largest reversing water turbine in Europe, 325 MW; it has the largest head of all power stations in the Czech Republic, 510.7 m; and it has the largest installed capacity in the Czech Republic, 2 x 325 MW. Total capacity is 3,200 MWh.\r\n\r\nThe power station fulfills static, dynamic and compensatory functions within the power system. The static function lies in converting the surplus energy in the system into peak-load energy - at periods of surplus electricity in the system, namely at night, water is pumped from the lower to the elevated storage reservoir; and during the on-peak periods, when there is a shortage of electricity, the power station’s turbines generate electricity. The dynamic function of the hydroelectric power station means functioning as the system’s output reserve, generating the regulating output and energy, and participating in the frequency regulation of the system. The compensatory operation facilitates the voltage regulation within the power system.\r\n\r\nThe lower reservoir is on the Divoká Desná River, 820 m above sea level. Its total capacity is 3.4 million m3 of water; it has a 56 m high dam, and its water level fluctuates by 22.2 m. The elevated reservoir is situated on top of the Dlouhé Stráně mountain, 1,350 m above sea level. Its total capacity is 2.72 million m3.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":561,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/561/EDS-20140717.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/561/thumb\_EDS-20140717.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/561/partner\_EDS-20140717.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":50.0817956,"longitude":17.1828703,"master\_project\_id":null,"name":"Dlouhé Stráně Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"ČEZ Group","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.cez.cz/en/power-plants-and-environment/hydraulic-power-plants/dlouhe-strane.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":650000,"size\_kwh":4.91666666666667,"size\_kwh\_hours":4,"size\_kwh\_minutes":55.0,"state":"Šumperk","status":"Operational","street\_address":"Dolní nádrž","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:46:05Z","updated\_at\_by\_admin":"2014-07-17T14:03:33Z","updated\_by":null,"updated\_by\_email":null,"utility":"ČEZ Group","utility\_type":"Investor Owned","vendor\_company":"CKD, Skoda","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Liptovsky Mikulas","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"infovet@enel.com","contact\_info\_visible":false,"contact\_name":"Enel's Slovenské Elektrárne Hydro Division","contact\_phone":"+421 1 1032 6542","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Slovakia","created\_at":"2013-09-07T19:36:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Liptovská Mara pumped storage power plant is located by the second \"peak-load\" reservoir in the upper section of the Váh catchment area, which performs the same functions as the Orava reservoir. The plant has two classical sets featuring the Kaplan turbine and two pumping sets featuring a diagonal reversible turbine (Dériaz system). In addition to the utilisation of the Váh river natural flows, the HPP thus also makes use of the water pumped to the upper reservoir at the time of electricity surplus in the system to generate electricity.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":562,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/562/elektraren.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/562/thumb\_elektraren.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/562/partner\_elektraren.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":49.0986111,"longitude":19.4888889,"master\_project\_id":null,"name":"Liptovská Mara Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Slovenské Elektrárne","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Generation: 134.5 GWh","primary\_reference":"http://www.seas.sk/en/power-plants/fuel-type/hydro/liptovska-mara-hpp","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":198000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Liptov","status":"Operational","street\_address":"Liptovská Mara","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:45:58Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"CKD, Skoda","zip":""}},{"project":{"announcement\_on":"2022-04-30","approval\_status":1,"city":"Schwerin","commissioning\_on":"2022-09-16","companion":"110-kV substation in Schwerin-Lankow","construction\_on":"2022-09-03","contact\_city":"","contact\_country":"","contact\_email":"Hiersemenzel@younicos.com","contact\_info\_visible":false,"contact\_name":"Philip Hiersemenzel","contact\_phone":"+49-174-9088188","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-09-07T20:12:47Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Europe's first commercial battery park, it will participate in Primary Frequency regulation market. Additional revenues/savings possible through black start capability etc. WEMAG AG, a utility located in Schwerin, Mecklenburg Western-Pomerania, will also receive EUR 1.3 million one-off grant through the Environmental Innovation Program (Umweltinnovationsprogramm) for the 5 MW lithium-ion battery plant, the Federal Ministry for the Environment (BMU) informed. The battery plant pilot project shall provide primary reserve (Primärregelleistung), thus helping to balance the grids and integrate green energy.\r\n\r\nIn late 2016, WEMAG decided to enlarge their battery park. With this upgrade, the utility’s storage resource will triple its power output from 5 MW to 15 MW, while the energy capacity will increase from 5 MWh to 15 MWh. An Additional 1,254 modules or 27,588 cells will be installed in a second building.\r\n","developer":"Younicos","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":1700000.0,"funding\_amount\_2":5000000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"Private/Third Party Equity","funding\_source\_3":"","funding\_source\_details\_1":"Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) - Environmental Innovation Program (Umweltinnovationsprogramm)","funding\_source\_details\_2":"WEMAG AG","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":563,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/563/wemag.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/563/thumb\_wemag.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/563/partner\_wemag.png"}},"integrator\_company":"Younicos","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":53.635359,"longitude":11.401654,"master\_project\_id":null,"name":"WEMAG Schwerin Battery Park - Younicos","om\_contractor":"All Parties","organization":"","owner\_1":"WEMAG AG","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.younicos.com/case-studies/schwerin/","primary\_reference1":"https://www.younicos.com/wp-content/uploads/2016/07/Younicos\_Case\_Schwerin\_US.pdf","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":15000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Mecklenburg Western-Pomerania","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-22T22:11:19Z","updated\_at\_by\_admin":"2014-09-11T14:15:10Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"WEMAG AG","utility\_type":"Investor Owned","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Ružín","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"infovet@enel.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Slovakia","created\_at":"2013-09-07T20:43:11Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Ružín pumped storage power plant on the Hornád river is the country´s first pumped storage power plant to feature reversible turbines - there are two sets having a Francis turbine here.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":565,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/565/ruzin\_w1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/565/thumb\_ruzin\_w1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/565/partner\_ruzin\_w1.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":48.86311,"longitude":21.0926599,"master\_project\_id":null,"name":"Ružín Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Slovenské Elektrárne","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual generation: 54.2 GWh","primary\_reference":"http://www.seas.sk/en/power-plants/fuel-type/hydro/ruzin-hpp","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - 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Prior to its modernisation, the plant‘s installed capacity was 136 MW, increased to 200 MW following the modernisation. The plant consists of four hydroelectric units. It is located at the foot of Poland‘s highest gravity dam. The available head is 60 m. The higher-elevation reservoir of the plant is the largest artificial lake in Poland.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":567,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/567/solina-014-aeromedia-mini.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/567/thumb\_solina-014-aeromedia-mini.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/567/partner\_solina-014-aeromedia-mini.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":49.3958323,"longitude":22.4606916,"master\_project\_id":null,"name":"Solina Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"PGE Energia Odnawialna","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.pgeeo.pl/en/nasze-obiekty/lista-obiektow/energia-wody/solina-hydroelectric-power-plant","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":200000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Podkarpackie","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:45:41Z","updated\_at\_by\_admin":"2013-09-07T21:25:35Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"CKD, Skoda, Voith","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Czymanowo","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"zew@solina.pl","contact\_info\_visible":false,"contact\_name":"PGE Energia Odnawialna","contact\_phone":"+48 13 492 12 00","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Energoprojekt-Warszawa","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Poland","created\_at":"2013-09-07T22:53:07Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"It is the largest Polish hydroelectric power plant, located on Żarnowieckie Lake. It is a pumped-storage facility relying on Żarnowieckie Lake as the lower reservoir, while its upper reservoir built on a nearby plateau is completely artificial.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":568,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/568/Zarnowiec3.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/568/thumb\_Zarnowiec3.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/568/partner\_Zarnowiec3.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":54.7697655,"longitude":18.0466655,"master\_project\_id":null,"name":"Żarnowiec Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"PGE Energia Odnawialna","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.ekoportal.eu/artykuly/zasada\_dzialania\_oraz\_wplyw\_na\_srodowisko\_elektrowni\_szczytowo-pompowej\_w\_zarnowcu.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - 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Its total output is 415,000 kW, with a flow of 125 m³/s and a head of 400 m. The power station sits in a cavern excavated in granite slate transition terrain, measuring 80 x 40 x 20 m. It took four years to build (1981-1985) for a total cost of 46,440 million euros. \r\n\r\nhttp://www.copisa.com/en-us/project-gallery/prominent-works/prominents-works/estany-gento-sallente-hydroelectric-power-station.html\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":576,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/576/sallente.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/576/thumb\_sallente.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/576/partner\_sallente.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":42.5104171,"longitude":1.0029834,"master\_project\_id":null,"name":"Estany Gento/Sallente Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Endesa","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.patrimonihidroelectric.com/ca/calaix-historic/museu-hidroelectric-de-capdella/la-central-reversible-de-sallente-estanygento#","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":468000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Lerida","status":"Operational","street\_address":"Estany Gento","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:45:17Z","updated\_at\_by\_admin":"2014-07-30T19:09:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"Endesa","utility\_type":"Investor Owned","vendor\_company":"Voith, Mecanica de la Pena, ABB","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Bárcena de Pie de Concha","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"informacion@eon.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"+34 91 4184400","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-09-08T02:12:44Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Aguayo hydropower plant, located in San Miguel de Aguayo (Cantabria), has been in operation since 1982. It currently provides 38% of electricity generation capacity installed in Cantabria.\r\n\r\nThe plant usually produces energy during the week, when electricity demand spikes, and pumps water for storage during the weekend, when consumption falls. The process takes 33 hours. E.ON Spain will invest € 600 million in expanding the Aguayo hydroelectric complex with the addition of Aguayo II, an adjacent pumped storage power plant with a 1,000 MW capacity, in order to accelerate this process and move to a daily cycle. Pumping the upper reservoir will only require eight hours, allowing for greater annual generation.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":578,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":43.092929,"longitude":-4.015202,"master\_project\_id":null,"name":"Aguayo I Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"E·ON España","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Efficiency: 70%","primary\_reference":"http://www.eonespana.com/es/empresa/generacion/proyecto-ampliacion-de-aguayo/actual-central-de-aguayo.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":360000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Cantabria","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:45:10Z","updated\_at\_by\_admin":"2013-09-08T02:31:56Z","updated\_by":null,"updated\_by\_email":null,"utility":"E·ON España","utility\_type":"Investor Owned","vendor\_company":"Voith, Mecanica de la Pena, ABB","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Bárcena de Pie de Concha","commissioning\_on":null,"companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"JBartell@strategen.com","contact\_info\_visible":false,"contact\_name":"J","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":790000000.0,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-09-08T02:32:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The objective of E.ON's addition of the underground pumped storage power plant, Aguayo 2, is to shorten production cycles at the Aguayo Group. Aguayo 2 will utilize the elevation drop between the same reservoirs as Aguayo 1 does, and will contain four reversible Francis pump-turbines with a power of 250 MW each. The 1,000 MW expansion in installed capacity will bring the capacity of the Aguayo Group up to 1,360 MW and annual generation up to 2 million MWh, four times its current production.\r\n\r\nThe estimated investment in the project by E.ON Spain is 600 million euros. Hydroelectric plants pumping high power and efficiency play a key role for Spain's energy supply is flexible and reliable. The pumping stations are suitable for balancing intermittent renewable energy production because they can store energy with high efficiency and release immediately to provide electricity with zero emissions and environmentally friendly. \r\n\r\nConstruction is expected to begin in 2014 and commercial operation is expected to commence in 2017.","developer":"E·ON España","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":579,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":43.1276249,"longitude":-4.055505,"master\_project\_id":"---\n- '578'\n","name":"Aguayo II Pumped Storage Power Plant","om\_contractor":"","organization":"Strategen Consulting","owner\_1":"E·ON España","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.eonespana.com/es/empresa/generacion/proyecto-ampliacion-de-aguayo/la-ampliacion-aguayo-ii.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1014000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Cantabria","status":"Announced/Never Built","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2018-02-27T02:30:49Z","updated\_at\_by\_admin":"2014-10-27T17:11:33Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"E·ON España","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Evanston","commissioning\_on":"2022-08-22","companion":"","construction\_on":null,"contact\_city":"Chicago","contact\_country":"United States","contact\_email":"info@allcelltech.com ","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"773-922-1155 ","contact\_state":"Illinois","contact\_street\_address":"2321 W. 41st St ","contact\_zip":"60609","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-09-09T13:28:18Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"AllCell Technologies and Windfree announced the completion of the Chicago area's first lithium-ion energy storage system connected to a solar powered electric vehicle (EV) charging station.\r\n\r\nThe state-of-the-art battery system helps buffer the electrical grid from the uneven power demands of EV charging while providing enough capacity to charge two vehicles in case of a power outage. Equipped with AllCell's proprietary thermal management technology, the battery is continuously protected from overheating to ensure safety and prolonged battery life.\r\n\r\nDevelopment of the Evanston, IL based project was managed by Windfree, and includes a 10 kilowatt solar canopy, 40 kilowatt-hour battery system, and two Level II charging stations.\r\n\r\nOne of the charging stations is used exclusively by car sharing firm I-GO, while the other is available to the public. Alternative Transportation for Chicagoland owns the installation, and other project partners included architects Farr Associates and Continental Electric Construction Company.\r\n\r\n\"As more and more electric vehicles are sold each year, the strains on the electrical grid will continue to increase,\" said AllCell CEO Said Al-Hallaj.\r\n\r\nThe combination of on-site generation and on-site storage co-located with EV charging stations will be a critical part of ensuring that continued growth in the EV market doesn't disrupt the normal operation of the electrical grid.\r\n\r\nAccording to WindFree President Doug Snower, \"The combination of advanced battery technology incorporated with our solar canopy EV charging stations make this a dream project for Windfree. We look forward to sharing open source data through a web base monitoring portal that will demonstrate utility infrastructure benefits and energy savings.\"\r\n","developer":"WindFree","electronics\_provider":"AllCell Tech","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":582,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/582/allcell-solar.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/582/thumb\_allcell-solar.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/582/partner\_allcell-solar.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":42.0450722,"longitude":-87.6876969,"master\_project\_id":null,"name":"AllCell Chicago EV Charging Station","om\_contractor":"","organization":null,"owner\_1":"Alternative Transportation for Chicagoland ","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://earthtechling.com/2013/08/going-solar-ev-charging-with-energy-storage-in-chicago/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":40,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Illinois","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-04-21T21:04:13Z","updated\_at\_by\_admin":"2014-04-21T21:04:13Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Castle Valley","commissioning\_on":"2022-05-01","companion":"","construction\_on":"2022-05-01","contact\_city":"","contact\_country":"","contact\_email":"margaret.oler@rockymountainpower.net","contact\_info\_visible":false,"contact\_name":"Margaret Oler","contact\_phone":"801-220-2592","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-09-09T13:37:07Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":"2022-03-01","desc":"PacifiCorp is a utility based in Portland, Oregon with operations in six Western states. The Castle Valley site was serviced by a 25 kV feeder over 85 miles long, with 209 miles of total line. The length of the feeder led to complaints of low reliability and power quality. In addition, the feeder could not supply any significant amount of new load without causing low voltage to existing customers. Traditional alternatives to add capacity and improve service in this area are costly and environmentally difficult, so that PacifiCorp has sought viable alternatives to meet these goals. The Castle Valley VRB System was built and commissioned for this purpose.\r\n\r\nVanadium redox flow batteries store energy in two electrolytes which are pumped from separate storage tanks across proton exchange membranes in the cell stacks, producing a DC current. The reaction is reversible, so that the battery can be charged and discharged repeatedly with high efficiency. The VRB-ESS™ at Castle Valley was built by VRB Power Systems of Vancouver, British Columbia. The system was sized to provide 250 kW for 8 hours, with a round-trip efficiency when fully operational of between 65% and 80%. The system incorporated a power converter which converts the DC power provided by the battery to AC power during discharge, and vice versa during recharge. The power converter was also capable of providing reactive power compensation and overload capability for short periods of time. The system was commissioned in November 2003, operational in May 2004, and was decommissioned in Spring 2008.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":583,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/583/Utah\_Castle\_Valley\_VRB.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/583/thumb\_Utah\_Castle\_Valley\_VRB.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/583/partner\_Utah\_Castle\_Valley\_VRB.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.6394278,"longitude":-109.4090056,"master\_project\_id":null,"name":"PacifiCorp Castle Valley VRB","om\_contractor":"","organization":null,"owner\_1":"PacifiCorp","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.prnewswire.com/news-releases/vanteck-vrb-technology-corp---pacificorp-energy-storage-system-installation-77650367.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":250,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Utah","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-10-20T17:22:08Z","updated\_at\_by\_admin":"2014-10-20T17:22:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"Utah Power","utility\_type":"Investor Owned","vendor\_company":"VRB Power Systems","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Dietikon","commissioning\_on":"2022-03-21","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"michael.koller@ekz.ch","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Switzerland","created\_at":"2013-09-09T13:43:29Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"The Utility of the Canton of Zurich (EKZ) and ABB have installed a 1 MW battery in Dietikon, Switzerland. The battery can store up to 500 kWh and is therefore the largest of its kind in Switzerland. The system was built over a nine-month period, including procurement of all necessary permits.\r\n \r\nThe Energy Storage System is connected to the low and medium voltage grid of EKZ and its control include a photovoltaic (PV) plant, an office building and electric vehicle charging stations, allowing to test various different smart grid applications.\r\n \r\nABB's PCS100 enables AC/DC conversion in both directions at full nominal power. The battery cells were provided by LG Chem and are located inside an air conditioned outdoor container, which ensures optimum conditions for the cells.\r\n \r\nThe various applications investigated include primary frequency control, peak shaving, microgrid control including the office building, and voltage control using active and reactive power supplied by the PCS.","developer":"","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":584,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/584/ABB\_EKZ\_aussen\_nacht\_01.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/584/thumb\_ABB\_EKZ\_aussen\_nacht\_01.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/584/partner\_ABB\_EKZ\_aussen\_nacht\_01.jpg"}},"integrator\_company":"ABB","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.4048128,"longitude":8.5570492,"master\_project\_id":null,"name":"The Zurich Dietikon 1 MW BESS","om\_contractor":"","organization":"EKZ","owner\_1":"EKZ","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.abb.com/cawp/seitp202/0b80d94850f2df5ac1257a4c002d4430.aspx","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_5":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Zurich","status":"Operational","street\_address":"Überlandstrasse 2","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:04:26Z","updated\_at\_by\_admin":"2014-08-13T16:46:36Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"EKZ","utility\_type":"","vendor\_company":"LG Chem Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Dogo","commissioning\_on":"2022-08-01","companion":"Wind","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-09-09T13:50:28Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":"2022-06-01","desc":"In August 2003, Fuji Electric installed a 200 kW Urenco Power Technology Flywheel adjacent to 1.8 MW of wind turbines. The flywheel helped reduce the fluctuations on the system and allowed the diesel engines, which were stabilizing the turbines, to operate at higher efficiency, thereby reducing the use of diesel fuel.\r\n\r\nIn June 2004, Urenco abandoned the flywheel for power quality market and removed all previously installed flywheels.\r\n\r\nRead the DOE/EPRI 2004 report on ES for Grid Connected Wind Generation Applications:\r\nhttp://www.sandia.gov/ess/publications/EPRI-DOE%20ESHB%20Wind%20Supplement.pdf","developer":"","electronics\_provider":"Fuji Electric","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":585,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.25,"longitude":133.266667,"master\_project\_id":null,"name":"Dogo Island Flywheels","om\_contractor":"","organization":null,"owner\_1":"Tokyo Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.energycentral.com/articles/article/1164","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Distribution upgrade due to wind","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Electric Supply Capacity","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":200,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Shimane","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2014-08-07T20:35:28Z","updated\_at\_by\_admin":"2014-08-07T20:35:15Z","updated\_by":null,"updated\_by\_email":null,"utility":"Tokyo Electric Power Company","utility\_type":"","vendor\_company":"Urenco Power Technology","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Fuentes de Andalucía","commissioning\_on":"2022-04-01","companion":"","construction\_on":"2022-02-01","contact\_city":"","contact\_country":"Spain","contact\_email":"santiago.arias@torresolenergy.com","contact\_info\_visible":true,"contact\_name":"Santiago Arias","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Sener","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-09-09T14:12:43Z","created\_by\_id":117,"debt\_investor":"Bank Consortium ","decommissioning\_on":null,"desc":"Gemasolar is the first commercial-scale plant in the world to apply central tower receiver and molten salt heat storage technology. The relevance of this plant lies in its technological uniqueness, since it opens up the way for new thermosolar electrical generation technology. The notable increase in the plant's power efficiency guarantees electrical production for 6,500 hours a year, 1.5 to 3 times more than other renewable energies. The plant will thus supply clean, safe power to 25,000 homes and reduce atmospheric CO2 emissions by more than 30,000 tons a year.\r\n\r\nThe power generated by Gemasolar will be sent through a high-tension line to the substation of Villanueva del Rey (Andalusia, Spain), where it will be injected into the grid.\r\n\r\nDue to turbine capacity constraints output is limited to 19.9 MW. Please note that thermal capacity is actually 50 MW.","developer":"TORRESOL O&M","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":588,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/588/gemasolar-plant.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/588/thumb\_gemasolar-plant.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/588/partner\_gemasolar-plant.jpg"}},"integrator\_company":"Sener","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.4687376,"longitude":-5.352847,"master\_project\_id":null,"name":"Gemasolar Plant ","om\_contractor":"TORRESOL O&M","organization":"","owner\_1":"Sener","owner\_2":"Masdar","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":60.0,"ownership\_percentage\_2":40.0,"performance":"Electricity Generation: 110,000 MWh/yr (Expected/Planned)","primary\_reference":"http://www.torresolenergy.com/TORRESOL/gemasolar-plant/en","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":19900,"size\_kwh":15.0,"size\_kwh\_hours":15,"size\_kwh\_minutes":0.0,"state":"Seville","status":"Operational","street\_address":"Km 475 A4","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-26T18:36:15Z","updated\_at\_by\_admin":"2013-12-05T22:04:54Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Sener","zip":""}},{"project":{"announcement\_on":"2022-09-09","approval\_status":1,"city":"Hachijo","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-09-09T14:29:43Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"The electricity network on Hachijo Island is supplied by internal combustion engine generators in addition to abundant natural resources, including geothermal and wind energy. As a part of a government-subsidized project, a 400-kW NAS battery system was installed adjacent to an existing 500-kW wind turbine generator. An investigation of the NAS system's capability to suppress fluctuations in wind generator output has been conducted since 2001. The results over the years confirm that wind generator output fluctuations can be effectively suppressed by the NAS battery's high-speed charge/discharge control system.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":590,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.102183,"longitude":139.80051,"master\_project\_id":null,"name":"Hachijo Island NaS Battery ","om\_contractor":"","organization":"N/A","owner\_1":"Tokyo Electric Power Company (TEPCO)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.bpa.gov/Energy/n/tech/energyweb/docs/Energy%20Storage/NGK-Paper.PDF","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":400,"size\_kwh":7.2,"size\_kwh\_hours":7,"size\_kwh\_minutes":12.0,"state":"Tokyo","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-05T05:32:23Z","updated\_at\_by\_admin":"2014-11-07T21:36:04Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Tokyo Electric Power Company (TEPCO)","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Palmdale","commissioning\_on":null,"companion":"","construction\_on":"2022-02-01","contact\_city":"","contact\_country":"","contact\_email":"mgravely@energy.state.ca.us","contact\_info\_visible":false,"contact\_name":"Mike Gravely","contact\_phone":"916-327-1370","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":2819000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-09-09T14:53:50Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"\*\*\*Project was never commissioned\*\*\*\r\nObjectives were to use a 450 kW supercapacitor to:\r\n- Maintain high power quality on protected loads at all times\r\n- Provide power to protected load in event of a utility sag or outage, \r\n- Meet the ITI (CBEMA) curve during power quality events, \r\n- Resynchronize with backup power or grid as necessary \r\n- Target applications include Seamless Reliability (UPS), VAR Support (Power Quality), Mobile Trailer Configuration for Utilities, Wind Farm Stabilization, Village Power Systems, MicroGrid Networks\r\n","developer":"","electronics\_provider":"Northern Power","energy\_management\_software\_provider":null,"funding\_amount\_1":979000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"California Energy Commission - Public Interest Energy Research Program (PIER)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":593,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/593/Palmdale\_Ultracapacitor.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/593/thumb\_Palmdale\_Ultracapacitor.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/593/partner\_Palmdale\_Ultracapacitor.jpg"}},"integrator\_company":"Northern Power","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.5794343,"longitude":-118.1164613,"master\_project\_id":null,"name":"Palmdale Micro Grid Energy Storage Demonstration","om\_contractor":"","organization":null,"owner\_1":"California Energy Commission","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.sandia.gov/ess/docs/pr\_conferences/2006/mckay.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":450,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Offline/Under Repair","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical Capacitor","technology\_type\_l1":"Electro-chemical Capacitor","technology\_type\_l2":"Electro-chemical Capacitor","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-12-22T02:59:05Z","updated\_at\_by\_admin":"2015-12-22T02:59:05Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Maxwell Technologies","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"St. Andre","commissioning\_on":"2022-11-30","companion":"10 MW Solar PV Farm, 2 MW Solar PV Farm, 11 MW Wind Farm","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2013-09-09T14:57:33Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"This 1st NaS battery for Reunion Island is located in Saint-André in the eastern part of the island. This site was chosen because of the available land, the proximity for connection to the electricity network and access to the EDF Reunion fiber optics network. With a power level of 1 MW, the NAS battery can provide 7.2 MWh or the equivalent of the average consumption of 2,000 households.\r\n\r\nBourbon Lumière was assigned the assembly, installation and connection of the battery to the network. Atexia took charge of the low current work. The work was carried out under the supervision of the Japanese companies NGK (NAS battery) and MEIDENSHA (power electronics and connection to the network). \r\nThe exchanges provided valuable learning, allowing for the installation of this new electrical system unit for Reunion Island, in terms of both the novelty of the facilities and the supervisors’ requirements.\r\n\r\nThe installation work took 10 weeks, in accordance with the schedule decided on by EDF and NGK/MEIDENSHA.\r\n","developer":"","electronics\_provider":"Meidensha Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":594,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Bourbon Lumiere ","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.6574512,"longitude":-4.1432012,"master\_project\_id":null,"name":"Reunion Island Pegase Project","om\_contractor":"","organization":"N/A","owner\_1":"Électricité de France (EDF)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.cired.net/publications/workshop2016/pdfs/CIRED2016\_0286\_final.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":7.2,"size\_kwh\_hours":7,"size\_kwh\_minutes":12.0,"state":"Reunion","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:05:21Z","updated\_at\_by\_admin":"2014-11-07T21:36:42Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Électricité de France (EDF)","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":"2022-10-04","approval\_status":1,"city":"Ragusa","commissioning\_on":null,"companion":"Primary Substation","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"christian.noce@enel.com","contact\_info\_visible":false,"contact\_name":"Christian Noce, Enel","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-09-09T15:01:41Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"To support such efforts in southern Italy, ABB will provide Enel Distribuzione with a battery energy storage system that will enable the utility to study the benefits of using such facilities in their distribution network. The system will be installed at the Contrada Dirillo distribution substation in Ragusa province in southern Sicily. \r\n \r\nIt can provide 2 megawatts (MW) of power for up 30 minutes and will be housed in three factory-tested containers – two containing lithium-ion batteries and a third accommodating the power conversion and energy management systems. \r\n\r\nThe Energy Storage System will be used to control the energy flow between Enel's network and the national Grid.","developer":"ABB","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"POI Energy (Interregional Operative Program 2007-2013)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":595,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"ABB","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.8711288,"longitude":14.7609146,"master\_project\_id":null,"name":"Enel Dirillo Substation BESS Project ","om\_contractor":"","organization":"","owner\_1":"Enel Distribuzione","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.abb.com/cawp/seitp202/8c2b9149039d2d0ec1257b5200331466.aspx","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Ramping ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":2000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Sicily","status":"Operational","street\_address":"Contrada Dirillo","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T20:33:22Z","updated\_at\_by\_admin":"2014-10-29T22:31:30Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Enel","utility\_type":"Investor Owned","vendor\_company":"FIB","zip":"97011"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Sumba","commissioning\_on":"2022-08-08","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Indonesia","created\_at":"2013-09-09T15:05:48Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"Sumba Island is located in eastern Indonesia and was originally known as Sandalwood Island (as it exported sandalwood). Sumba Island is home to over 600,000 people and is one of the Lesser Sunda Islands, and is in the province of East Nusa Tenggara. \r\n\r\nThe VRB ESS will provide real and reactive power to Sumba, a small island in eastern Indonesia that has poor power supply. Using the ESS, the grid can support power to the island when the main grid is interrupted. This will in turn generate a smooth output of power, increasing the renewable accommodation capability. The PCS100 ESS battery solution can help energy storage devices, such as batteries, achieve stable storage and release of electrical energy \r\nthrough frequency modulation and voltage regulation. For a power system, PCS100 ESS is just like a conventional synchronous generator featuring power electronics and advanced control technologies. Its inertial characteristics depend on the internal control system, which is aligned to the grid frequency and its change, and energy conversion is recognized on this basis.\r\n","developer":"","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":596,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/596/sumba.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/596/thumb\_sumba.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/596/partner\_sumba.JPG"}},"integrator\_company":"ABB","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-9.6993439,"longitude":119.9740534,"master\_project\_id":null,"name":"Sumba Island Microgrid Project ","om\_contractor":"","organization":"N/A","owner\_1":"Unknown","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.abb.com/cawp/seitp202/859780f0ee41adeec1257af60038b371.aspx","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":400,"size\_kwh":1.25,"size\_kwh\_hours":1,"size\_kwh\_minutes":15.0,"state":"East Nusa Tenggara","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-05T04:38:56Z","updated\_at\_by\_admin":"2014-08-14T14:22:39Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Prudent Energy Corporation","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Tomamae","commissioning\_on":"2022-01-01","companion":"30.6 MW Wind Farm","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-09-09T15:24:52Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"The Tomamae Wind Villa Power Plant continues to be one of the world’s largest vanadium redox flow battery energy storage installations and, at the time of commissioning in 2000, was Japan’s first and largest wind power plant. In 2005, Sumitomo Electric International (Osaka, Japan) was contracted to install a vanadium flow battery system at the existing 30.6 MW Tomamae Wind Villa on the island of Hokkaido, Japan. The primary intent of the battery system is to provide “wind smoothing” for the intermittent and variable wind plant. The facility has operated well since 5 January 2005, sometimes performing over 50 charge-discharge cycles per hour. By acting as a rapid source and sink for the sometimes highly variable wind energy production, this facility has reduced the ramping rates of the wind farm’s output with respect to the rest of the island’s grid by reducing the peaks and valleys of the wind farm energy output. \r\n\r\nThe project is located on a Tomamae Town managed stock farm. Scenery and farm land utilization is preserved by burying the power cables and installing transformers in the turbine towers. The energy storage facility is configured with 16 modules rated at 250 kW each, which gives the entire facility 4 MW with 6 MWh of storage (90 minutes). Pulse power of 6 MW exists, but only for 20 minutes. The project was developed and is owned by J-Power, the largest electric utility in Japan. While moving into wind generation, J-Power produces most of it’s electricity from coal-fired and hydroelectric power plants. Other J-Power wind generation projects include the 65.98 MW Koriyama Nunobiki-kogen Wind Power Plant, 24.75 MW Nikaho Highland Wind Project, 21 MW Green Power Kuzumaki Wind Farm, and the 22 MW J-Wind Tahara plants. 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This research project uses the in-house developed 60 m2 parabolic dish and features an innovative thermal storage for night operation. The 60 m2 dish is a proven technology and is based upon 15 years of experience with the parabolic concentrator with fixed focus. The concentrated solar power plant (CSP) will generate heat and power for a campus of 25,000 people.","developer":"World Renewal Spiritual Trust (WRST)","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"Federal/National","funding\_source\_3":"","funding\_source\_details\_1":"Indian Ministry of New and Renewable Energy Sources (MNRE)","funding\_source\_details\_2":"German Federal Ministry for the Environment, Natures Conservation, and Nuclear Safety (BMU)","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":600,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/600/India.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/600/thumb\_India.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/600/partner\_India.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":24.517022,"longitude":72.785759,"master\_project\_id":null,"name":"India One Solar Thermal Plant - World Renewal Spiritual Trust (WRST)","om\_contractor":"","organization":"","owner\_1":"World Renewal Spiritual Trust (WRST)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://india-one.net","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1000,"size\_kwh":16.0,"size\_kwh\_hours":16,"size\_kwh\_minutes":0.0,"state":"Rajasthan","status":"Operational","street\_address":"Talheti","systems\_integration":"","technology\_classification":"","technology\_type":"Heat Thermal Storage","technology\_type\_l1":"Heat Thermal Storage","technology\_type\_l2":"Heat Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-16T03:56:15Z","updated\_at\_by\_admin":"2014-10-20T16:58:25Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":"307510"}},{"project":{"announcement\_on":"2022-10-07","approval\_status":1,"city":"Greater Noida","commissioning\_on":"2022-06-29","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"programoffice.netra.ntpc@gmail.com","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"91-120-2356512 ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"India","created\_at":"2013-09-09T18:47:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This Solar Thermal HVAC (ST-HVAC) system consists of two numbers of high optical efficiency, point focus, two-axis tracking solar concentrator of Fresnel design, called the ARUN concentrator dish. The ARUN dishes provide fry saturated steam at 180o C at about 200kg per hour. The steam is fed to a 50 TR (i.e. about 175 kW of cooling) Vapour Absorption Machine (VAM). In turn, the VAM utilizes the thermal energy of steam to produce the cooling effect. The distinguishing feature of the system is the storage tank that can store up to 2 days of chilling. \r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":602,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/602/netra.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/602/thumb\_netra.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/602/partner\_netra.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":28.4828339,"longitude":77.5177139,"master\_project\_id":null,"name":"Clique Solar Solar Thermal HVAC System","om\_contractor":"","organization":"NETRA (NTPC Energy Technology Research Alliance)","owner\_1":"NETRA (NTPC Energy Technology Research Alliance)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.cliquesolar.com/latest.aspx#","primary\_reference1":"http://www.ntpc.co.in/en/media/press-releases/details/ntpc-starts-set-solar-thermal-air-conditioning-system","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":175,"size\_kwh":48.0,"size\_kwh\_hours":48,"size\_kwh\_minutes":0.0,"state":"Uttar Pradesh","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-06T06:33:26Z","updated\_at\_by\_admin":"2013-09-09T18:50:24Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Clique Solar","zip":"201308"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Bhopal","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"sales@suncarrieromega.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"+91-755-2529950","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"India","created\_at":"2013-09-10T04:29:18Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Sun Carrier Omega Net-Zero Energy Building in Bhopal, Madhya Pradesh, is an off-grid solar powered facility. Energy generated by the sun-tracking Sun Carrier solar PV systems feeds the lighting and air conditioning load for the building, while also charging the large capacity cellcube vanadium redox flow battery and energy management system.\r\n","developer":"SunCarrier Omega Pvt. 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Surplus solar DC energy is stored in a battery array, providing users with energy even during peak usage times and night. DC electricity from the solar array and batteries is converted via a AC inverter.\r\n","developer":"Gram Power","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":604,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":25.4348327,"longitude":74.6649277,"master\_project\_id":null,"name":"Gram Power Khareda Lakshmipura Microgrid","om\_contractor":"","organization":null,"owner\_1":"Gram Power","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.theguardian.com/world/2012/sep/10/india-hamlet-where-power-stayed-on","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":40,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Rajasthan","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-09-05T15:17:57Z","updated\_at\_by\_admin":"2014-09-05T15:10:17Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Berlin","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Germany","contact\_email":"Hiersemenzel@younicos.com","contact\_info\_visible":true,"contact\_name":"Philip Hiersemenzel","contact\_phone":"+49-174-9088189","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Younicos","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-09-10T20:04:02Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"In a joint pilot project, Younicos and Vattenfall have commissioned the first large-scale battery to be integrated in the European electricity balancing market. Since the end of 2012, a 1 megawatt sodium-sulfur battery based at the Younicos headquarters in Berlin-Adlershof successfully balances short-term fluctuations in the power grid. This is the first time a battery is employed in maintaining the mains power frequency of the transmission system operator 50 Hertz Transmission GmbH.\r\n\r\nThe hybrid battery consists of a 1 MW/6 MWh sodium sulfur unit and 200 kW/200 kWh lithium-ion unit.\r\n","developer":"Younicos","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Equity","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Younicos","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":605,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/605/Vattenfall.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/605/thumb\_Vattenfall.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/605/partner\_Vattenfall.png"}},"integrator\_company":"Younicos","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":52.42726,"longitude":13.545284,"master\_project\_id":null,"name":"Younicos and Vattenfall Project: Sodium Sulfur","om\_contractor":"All Parties","organization":"Younicos","owner\_1":"Younicos","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.younicos.com/en/projects/02\_vattenfall/","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Berlin","status":"Operational","street\_address":"Am Studio 16","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-04T06:55:03Z","updated\_at\_by\_admin":"2016-05-16T23:27:20Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Vattenfall","utility\_type":"Federally Owned","vendor\_company":"NGK Insulators Ltd.","zip":"12489"}},{"project":{"announcement\_on":"2022-09-10","approval\_status":0,"city":"Darmstadt","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"contact@web2energy.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-09-10T20:31:36Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"Project objectives\r\nThree pillars of Smart Grids in distribution systems\r\nThe project Web2Energy is directed to implement and approve all three pillars of \"Smart Distribution\".\r\n\r\n1. Smart Metering – the consumer participates in the energy market\r\nA few hundred electricity consumers in the supply area of HSE AG will be obtained with smart meters. These advanced meters provide many innovative functions:\r\n\r\nRemote reading of metered values in short term intervals,\r\nReception and visualization of price signals (variable rates)\r\nDisturbance signals and management of failures\r\nEstimation of manipulations and stolen energy\r\nPermanent meter data storage and monitoring of load profiles\r\nSupervision and control of distributed power producer, storage and controllable loads\r\nFurthermore, they provide gateways to monitor the current demand with the related costs and to further functions of building automation and in-house energy management (smart home). Variable (up to hourly) rates are offered to the clients. Current rates, the rate forecasts and the current demand are monitored. The consumer gets the opportunity to control his demand regarding non time critical loads in accordance with the offered rates. The project Web2Energy is able to achieve experiences with such a practice. The advanced meter technology comes from Landis + Gyr Austria.\r\n\r\n2. Smart Energy Management – Clustering of small power producers \r\nA large number of small independent power producers are supervised and coordinated in such a way that at each moment a scheduled power feeds into the distribution network in accordance with the current demand or the request from the market. Consequently, the deviation of fluctuating wind or solar power from the predictions can be compensated in real-time through the aggregation with controllable generators, loads and storage in the framework of a virtual power plant (VPP). Inside the supply area of the HSE AG this coordination will be applied with benefits. Parallel with a number of volatile of wind power and photovoltaic plants a large number controllable hydro and thermo power plants with cogeneration of heat and power (CHP), storage and controllable industrial loads are in operation. They are able to contribute to the generation and load management. The central operated VPP participates on the markets for energy and control power and optimizes the operations and the overall power in-feed. In this way all participants can achieve higher efficiency and higher compensation of their expenses in comparison with the single market access. To support the VPP operations advanced storage technologies will be established. The EUS GmbH Dortmund implements the VPP procedures. The Energy Research Centre of the Netherlands (ECN) contributes its experience of market access.\r\n\r\n3. Smart Distribution Automation – higher reliability of supply\r\nToday supply interruptions happen very rarely. When they do occur, they are caused by 96% in the medium (MV)-/low (LV) voltage distribution networks. In the case of a disturbance an inspection team has to drive along the MV/LV-terminals for disturbance allocation and supply recovery by switching operations. These procedures take on average 1 hour or more. The Web2Energy project implements an automated sequence to execute the former manual processes in a selected area of the HSE AG. This approach cuts the supply interruption down to minutes. Consequently, the very high reliability of supply in Germany will be significantly improved. The necessary control technology comes from iPLS (PL).\r\n\r\nLinking the users: All three pillars of smart distribution require the information exchange between the users of the network like consumers, producers, terminals, control centre of the network operator, traders and VPP. Communication channels have to cover also the last meters to these participants.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":606,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/606/younicos\_web2energy\_460x220.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/606/thumb\_younicos\_web2energy\_460x220.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/606/partner\_younicos\_web2energy\_460x220.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":49.8776483,"longitude":8.6517617,"master\_project\_id":null,"name":"Web2Energy Smart Grid Project ","om\_contractor":"","organization":null,"owner\_1":"European Union","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.web2energy.com","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":5,"size\_kwh":0.8,"size\_kwh\_hours":0,"size\_kwh\_minutes":48.0,"state":"Hesse","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-06-05T17:47:51Z","updated\_at\_by\_admin":"2014-06-05T17:44:30Z","updated\_by":null,"updated\_by\_email":null,"utility":"HSE AG","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Graciosa","commissioning\_on":"2021-12-31","companion":"4.5 MW wind and 1 MW solar","construction\_on":"2022-10-27","contact\_city":"","contact\_country":"","contact\_email":"florent.gaillard@leclanche.com; jacques.boppe@leclanche.com; Hiersemenzel@younicos.com","contact\_info\_visible":false,"contact\_name":"Jacques Boppe; Florent Gaillard; Philip Hiersemenzel","contact\_phone":"+49-174-9088188","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Leclanche","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Portugal","created\_at":"2013-09-10T21:07:07Z","created\_by\_id":117,"debt\_investor":"Affiliate of Recharge","decommissioning\_on":null,"desc":"As on many islands of similar size, the share of renewables on Graciosa is currently limited to only 15 percent annually. No matter how many wind turbines or photovoltaic power plants are added to the grid, the lion’s share of the electricity supply has to be produced by diesel generators.\r\n\r\nTo break this dependence on diesel fuel, intelligent power controls and a purpose-built Energy Management System make the current grid independent of conventional generators, whose rotating mass now sets the pace. The new system combines software with a 6 MW / 3.2 MWh battery storage system, a 4.5 megawatt wind park and a 1 megawatt photovoltaic power plant.\r\n\r\nThe new, hybrid power system on Graciosa can immediately use up to 100 percent sun and wind power. The diesel generators will only be needed for back-up in weeks with very poor weather conditions. This means we can cover an annual average of up to 70 percent of the island’s power demand with renewables. \r\n\r\nThe project is expected to save Portugal €1.5 million over the project’s 20-year lifespan.\r\n\r\nhttps://www.engerati.com/article/%E2%80%9Cgraciosa%E2%80%9D-game-changing-renewable-energy-project","developer":"Younicos; Recharge","electronics\_provider":"","energy\_management\_software\_provider":"Younicos","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":608,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/608/800px-Santa\_Cruz\_Graciosa\_Azores\_seen\_Monte\_da\_Ajuda.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/608/thumb\_800px-Santa\_Cruz\_Graciosa\_Azores\_seen\_Monte\_da\_Ajuda.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/608/partner\_800px-Santa\_Cruz\_Graciosa\_Azores\_seen\_Monte\_da\_Ajuda.jpg"}},"integrator\_company":"Leclanché","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.0524827,"longitude":-28.0068979,"master\_project\_id":null,"name":"Graciosa Project - Younicos & Recharge","om\_contractor":"All Parties","organization":"","owner\_1":"Recharge","owner\_2":"Younicos","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":50.1,"ownership\_percentage\_2":49.9,"performance":"https://youtu.be/9K2rX1vVI6A","primary\_reference":"http://www.leclanche.com/markets-solutions/graciosa-project/","primary\_reference1":"https://www.youtube.com/watch?v=9K2rX1vVI6A&feature=youtu.be","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Distribution upgrade due to wind","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":6000,"size\_kwh":0.533333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":32.0,"state":"Azores","status":"Operational","street\_address":"","systems\_integration":"Younicos","technology\_classification":"Electrochemical","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-21T21:21:44Z","updated\_at\_by\_admin":"2016-07-23T00:24:37Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Electricidade dos Açores","utility\_type":"Public Owned","vendor\_company":"Leclanché","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Wakkanai","commissioning\_on":"2022-02-01","companion":"5 MW PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"n/a","contact\_info\_visible":false,"contact\_name":"n/a","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-09-12T14:34:21Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"Wakkanai Mega-Solar Project: NEDO funded this 5 MW PV and 1.5 MW NAS battery on Hokkaido island. The Japan Electric Power Exchange installed a 4 MW NAS battery for a 51-MW wind farm in 2008. ","developer":"","electronics\_provider":"Meidensha Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":609,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/609/wakkanai\_mega\_solar.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/609/thumb\_wakkanai\_mega\_solar.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/609/partner\_wakkanai\_mega\_solar.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":45.4156641,"longitude":141.6730822,"master\_project\_id":null,"name":"Wakkanai Megasolar Project","om\_contractor":"","organization":"","owner\_1":"Wakkanai City Government","owner\_2":"","owner\_type":"3","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.meidensha.com/products/case/prod\_01/prod\_01\_03/prod\_01\_03\_01/prod\_01\_03\_01\_01/1210633\_4248.html","primary\_reference1":"http://www.nedo.go.jp/content/100639539.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1500,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Hokkaido Prefecture","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T23:40:49Z","updated\_at\_by\_admin":"2014-11-07T21:38:04Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Hokkaido Electric Power Company","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":"2022-04-11","approval\_status":1,"city":"Carpinone","commissioning\_on":"2022-02-29","companion":"Secondary substation","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"christian.noce@enel.com","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-09-12T15:33:38Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"Enel Distribuzione has begun installing the first smart grid in Italy, and one of the first in Europe, in Isernia. The technology installed will make it possible to optimally regulate the bi-directional flow of electricity generated from renewable resources on low and medium-voltage networks. A total investment of 10 million euros is projected for this Molise “pilot project”.\r\n\r\nSeveral thousand customers will take part in the project. The pilot smart grid linked to the Carpinone substation encompasses:\r\n\r\nSystems for estimating electricity generated from renewable resources; sensors for the advanced monitoring of grid volumes; interaction with electricity generators to provide advanced regulation of input flows; storage using lithium-ion battery technology, with a capacity of 0.7 MW (0.5 MWh), to modulate flows of electricity, built by Siemens to Enel specifications; recharging stations for electric vehicles; equipment installed in homes to allow customers to monitor their consumption.\r\n\r\nEnel is currently implementing a 10-year restructuring plan for its entire distribution network (over 1 million kilometers), coordinated with programs for encouraging the introduction of smart grids launched by the European Commission.\r\n","developer":"","electronics\_provider":"Siemens","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":610,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/610/Isernia\_project.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/610/thumb\_Isernia\_project.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/610/partner\_Isernia\_project.JPG"}},"integrator\_company":"Siemens","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.5922026,"longitude":14.3239586,"master\_project\_id":null,"name":"Enel Isernia Smart Grid Project","om\_contractor":"","organization":"Enel Distribuzione","owner\_1":"Enel Distribuzione","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.enel.com/en-gb/sustainability/news\_events/press\_releases/enel-distribuzione-italy-s-first-smart-grid-in-isernia/r/1648124","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Isernia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-13T06:27:26Z","updated\_at\_by\_admin":"2014-10-29T22:22:09Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Enel","utility\_type":"Investor Owned","vendor\_company":"Sanyo","zip":""}},{"project":{"announcement\_on":"2022-05-01","approval\_status":1,"city":"Ventotene","commissioning\_on":"2022-06-30","companion":"Conventional Generator","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"irene.fastelli@enel.com","contact\_info\_visible":false,"contact\_name":"Irene Fastelli","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-09-12T15:38:23Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"The 300 kW, 600 kWh lithium-ion battery being installed in Ventotene will be integrated with diesel generators that provide electricity to the island by the end of the year and will store electricity for use when there are peaks in demand. The island's 750 inhabitants, which become thousands when it fills up with tourists in the summertime, will enjoy the benefits of a device that:\r\n\r\n- Modulates generators, enabling them to operate at high efficiency rate\r\n\r\n- Makes electricity supply more secure\r\n\r\n- Reduces the annual fossil fuel consumption by 25% \r\n\r\n- Cuts greenhouse gases emissions\r\n\r\n- Integrates already operational renewable energy power plants, so that the island’s inhabitants can install new ones without unbalancing the network.\r\n\r\n","developer":"Siemens","electronics\_provider":"Siemens","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":611,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/611/Ventobene\_project.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/611/thumb\_Ventobene\_project.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/611/partner\_Ventobene\_project.JPG"}},"integrator\_company":"Siemens","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":40.7983097,"longitude":13.4320637,"master\_project\_id":null,"name":"Enel Ventotene Project - Siemens","om\_contractor":"","organization":"Enel Produzione","owner\_1":"Enel Produzione","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.enel.com/media/news/d/2014/06/island-energy-storage-an-enel-first","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":300,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Latina","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-08T04:26:27Z","updated\_at\_by\_admin":"2014-10-29T22:36:40Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Enel","utility\_type":"Investor Owned","vendor\_company":"LG Chem Ltd.","zip":""}},{"project":{"announcement\_on":"2021-12-20","approval\_status":1,"city":"La Palma","commissioning\_on":"2022-07-30","companion":"Generator at Central Los Guinchos","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"pablo.fontela@endesa.es","contact\_info\_visible":false,"contact\_name":"Pablo Fontela","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-09-12T15:56:12Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"The aim of Endesa'a STORE project is to demonstrate the technical and financial viability of large-scale storage systems to improve the reliability and operation of the grid in weak and isolated island networks.\r\n\r\nProject STORE has three demonstration plants in the Canary Islands:\r\n\r\n• Lithium-ion battery system, with total installed capacity of 1MW/3MWh\r\n\r\n• A flywheel with total installed capacity of 0.5MW/18MWs\r\n\r\n• Ultracapacitors with total installed capacity of 4MW/20MWs\r\n\r\nThis project's main goal is to increase the island's electric system reliability. The ultracapacitors, integrated in a conventional power plant, are able to respond to fast events and to maintain island frequency in an acceptable range.\r\n\r\nWith a budget of Euro 11 million, the project is partly financed by The Centre for Industrial Technological Development (CDTI) (a Business Public Entity, answering to the Ministry of Economy and Competitiveness) and the European Union.\r\n\r\nThe ultra capacitors we commissioned by Ingeteam. Read more details: http://goo.gl/YdhwNz","developer":"Ingeteam","electronics\_provider":"Ingeteam","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":612,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/612/La\_Palma\_canary\_islands\_ultracapacitor.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/612/thumb\_La\_Palma\_canary\_islands\_ultracapacitor.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/612/partner\_La\_Palma\_canary\_islands\_ultracapacitor.JPG"}},"integrator\_company":"Ingeteam","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":28.6629785,"longitude":-17.7917046,"master\_project\_id":"---\n- '612'\n- '764'\n- '765'\n","name":"Endesa STORE: La Palma Project - Ingeteam","om\_contractor":"","organization":"","owner\_1":"Endesa","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.enel.com/media/news/d/2014/02/three-energy-storage-facilities-in-spain","primary\_reference1":"https://www.upi.com/Spains-Endesa-launches-large-scale-energy-storage-project/20211391576700/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":4000,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Canary Islands","status":"Operational","street\_address":"Breña Alta","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical Capacitor","technology\_type\_l1":"Electro-chemical Capacitor","technology\_type\_l2":"Electro-chemical Capacitor","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-26T05:21:03Z","updated\_at\_by\_admin":"2014-10-30T21:27:01Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Endesa","utility\_type":"Investor Owned","vendor\_company":"NESS","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Sarriguren","commissioning\_on":"2022-09-01","companion":"Photovoltaic Demonstration","construction\_on":null,"contact\_city":"Bethesda ","contact\_country":"United States","contact\_email":"Hugh.Sharman@pdenergy.com ","contact\_info\_visible":false,"contact\_name":"Hugh Sharman ","contact\_phone":"","contact\_state":"Maryland ","contact\_street\_address":"7200 Wisconsin Ave. Suite 1002 ","contact\_zip":"20814 ","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-09-12T20:45:33Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":null,"desc":"Smart grid application- severe \r\nsingle phase loading requirements \r\n100% imbalance per phase- wide \r\nfrequency deviations \r\nOperated in a micro-grid to \r\nperform output leveling and time \r\nof day shifting\r\nProvides reactive energy voltage \r\ncontrol dynamically\r\nThe micro-grid will be both grid \r\nconnected and islanded\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":614,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/614/Cener\_VRB.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/614/thumb\_Cener\_VRB.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/614/partner\_Cener\_VRB.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":42.812778,"longitude":-1.5975,"master\_project\_id":null,"name":"CENER VRB","om\_contractor":"","organization":null,"owner\_1":"National Renewable Energy 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SYSLAB also includes a distributed control system. \r\n\r\nThe tests on the vanadium battery will include specific tests on the battery alone such as \r\nresponse tests, efficiency tests at different levels of SOC etc. and tests and measurements while it provides different services to grid including smoothing of wind turbine output, load balancing and similar services. A key point for the investigations is comparison \r\nbetween laboratory test performance and performance during normal operation. \r\n\r\nhttp://www.risoe.dk/rispubl/reports/ris-r-1608\_240-247.pdf","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":615,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/615/RISO\_DTU.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/615/thumb\_RISO\_DTU.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/615/partner\_RISO\_DTU.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":55.763516,"longitude":12.4949429,"master\_project\_id":null,"name":"RISO Syslab Redox Flow Battery","om\_contractor":"","organization":null,"owner\_1":"RISO Syslab","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://risoe-forms.risoe.dk/vindselskab/foredrag/7.%20Tema%20VIndkraft%20som%20led%20i%20VE%20selvforsyning/11.50%20-%2012.10%20Henrik%20Bindner/SYSLAB%20vindkonference%20maj%202008.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"RISO Syslab","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"Load Following (Tertiary Balancing)","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":15,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Lyngby-Taarbæk","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-14T14:23:08Z","updated\_at\_by\_admin":"2014-08-14T14:23:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Federally Owned","vendor\_company":"Prudent Energy Corporation","zip":""}},{"project":{"announcement\_on":"2022-01-10","approval\_status":2,"city":"Tudela ","commissioning\_on":"2022-03-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"inigo.berazaluce.minondo@acciona.es","contact\_info\_visible":false,"contact\_name":"Iñigo Berazaluce","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Acciona Energy","contractor\_2":"","contractor\_3":"","cost\_CAPEX":5000000.0,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-09-13T19:50:52Z","created\_by\_id":117,"debt\_investor":"","decommissioning\_on":"2022-03-01","desc":"Renewables group Acciona and partner Saft completed a 1 year pilot project on integrating a 1 MW lithium-ion battery onto an existing solar array in Spain, marking the first time such energy-storage technology has been used at a utility-scale PV installation in Europe. \r\n\r\nThe battery was capable of storing and then discharging 560kWh of electricity.\r\n\r\nThe outcome of the project resulted in the design of SCADA systems for PV+ storage power plants with the functionalities of power ramp control, primary and secondary frequency regulation, voltage regulation with active reactive power control and active power factor correction of the power plant. Acciona also developed algorithms to control the power ramps of the PV plant with lower use of the battery in order to increase its life.\r\n","developer":"Acciona Energy","electronics\_provider":"Ingeteam","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":616,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/616/Acciona\_baterias\_de\_1\_MW.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/616/thumb\_Acciona\_baterias\_de\_1\_MW.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/616/partner\_Acciona\_baterias\_de\_1\_MW.jpg"}},"integrator\_company":"Acciona Energy","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":42.06483,"longitude":-1.612827,"master\_project\_id":null,"name":"Acciona Energia Innovative Lithium-Ion System (ILIS) Project ","om\_contractor":"Acciona Energy","organization":null,"owner\_1":"Acciona Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.acciona-energia.com/innovation/solar/ilis-project.aspx","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"Ingeper","research\_institution":"Ikerlan Energía","research\_institution\_link":"","service\_use\_case\_1":"Voltage Support","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":1000,"size\_kwh":0.566666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":34.0,"state":"Navarre","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-05-21T07:17:30Z","updated\_at\_by\_admin":"2014-01-09T17:47:15Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"SAFT","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Rice","commissioning\_on":null,"companion":"Solar Power Plant","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"United States","contact\_email":"info@solarreserve.com","contact\_info\_visible":true,"contact\_name":"SolarReserve","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":750000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-10-07T19:43:04Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This project was proposed but never built.\r\n\r\nThe Rice Solar Energy Project is a 150 MW concentrating solar power facility project developed in Riverside County, California, the United States. Proposed by Rice Solar, a subsidiary of SolarReserve, the thermal power tower facility will be located on 1,410 acres (570 ha) of private land on the site of the former Rice Army Airfield, near the abandoned town of Rice, California. The project's innovative molten salt storage system will capture solar energy and deliver power to the grid even after the sun goes down. The facility is expected to power 68,000 homes, create up to 450 construction jobs, and generate more than $48 million in state and local tax revenue over the first 10 years of operation.","developer":"SolarReserve's Rice Solar Energy, LLC","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":619,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/619/SolarSalt1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/619/thumb\_SolarSalt1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/619/partner\_SolarSalt1.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.072968,"longitude":-114.813884,"master\_project\_id":null,"name":"Rice Solar Energy Project","om\_contractor":"","organization":"","owner\_1":"SolarReserve's Rice Solar Energy LLC","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://ricesolarenergy.com/project\_overview.html","primary\_reference1":"http://www.desertsun.com/story/tech/science/energy/2014/10/03/rice-solar-project-blythe/16671507/","projected\_lifetime":"30.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":150000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced/Never Built","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T01:45:09Z","updated\_at\_by\_admin":"2014-07-31T22:48:19Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"SolarReserve","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Boulder City","commissioning\_on":"2022-06-01","companion":"","construction\_on":"2022-02-01","contact\_city":"","contact\_country":"","contact\_email":"inigo.berazaluce.minondo@acciona.es","contact\_info\_visible":false,"contact\_name":" Iñigo Berazaluce","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Lauren Engineering","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-10-07T20:09:40Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Nevada Solar One is a concentrated solar power plant, with a nominal capacity of 64 MW and maximum capacity of 75 MW, spread over an area of 400 Acres. The projected CO2 emissions avoided is equivalent to taking approximately 20,000 cars off the road annually. The project required an investment of $266 million USD, and the project officially went to operation in June 2007. Electricity production is estimated to be 134 million kilowatt hours per year.\r\n\r\nIt is the second solar thermal power plant built in the United States in more than 16 years, and the largest STE plant built in the world since 1991. It is located in Eldorado Valley in the southwest fringe of Boulder City, Nevada, and was built in that city's Energy Resource Zone, which requires renewable generation as part of plant development permits; Nevada Solar One was approved as part of Duke Energy's larger El Dorado Energy project that built 1 GW of electrical generation capacity. The solar trough generation was built by Acciona Solar Power, a partially owned subsidiary of Spanish conglomerate Acciona Energy. Lauren Engineers & Constructors (Abilene, TX) was the EPC contractor for the project.Acciona purchased a 55 percent stake in Solargenix (formerly Duke Solar) and Acciona owns 95 percent of the project. Nevada Solar One is unrelated to the Solar One power plant in California.\r\n","developer":"Acciona Solar Power","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Tax Credit","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Federal Government - 30% Investment Tax Credit","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":620,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/620/galeria-alta3.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/620/thumb\_galeria-alta3.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/620/partner\_galeria-alta3.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.800172,"longitude":-114.981259,"master\_project\_id":null,"name":"Nevada Solar One Solar Power Plant","om\_contractor":"","organization":"","owner\_1":"Acciona Energía ","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://acciona.us/projects/energy/concentrating-solar-power/nevada-solar-one/","primary\_reference1":"https://www.nrel.gov/csp/solarpaces/project\_detail.cfm/projectID=20","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":64000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Nevada","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Thermal Storage","technology\_type\_l1":"Thermal Storage","technology\_type\_l2":"Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T06:39:54Z","updated\_at\_by\_admin":"2014-06-16T21:32:24Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Calasparra","commissioning\_on":"2022-03-31","companion":"","construction\_on":"2022-04-10","contact\_city":"","contact\_country":"","contact\_email":"contact@novatecsolar.com","contact\_info\_visible":false,"contact\_name":"Novatec Solar","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Novatec GmbH & Co. KG","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-10-07T20:54:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Commissioned in early 2012, Novatec Solar Espana’s 30 MW Puerto Errado 2 Thermosolar Power Plant is the world’s first and largest utility-scale, grid-connected linear fresnel reflector solar CSP power plant.\r\n\r\nThe plant employs a dry-cooled Thermodyne SAS steam turbine for reduced water usage and incorporates a Ruth single-tank thermocline thermal storage system, utilizing hot water and saturated steam, for efficient steam buffering. The project is built on a 170 acre site and has (28) rows of LFR mirrors.\r\n\r\nLinear fresnel reflector technology (LFR) has concentrating solar power’s best land-to-electricity ratio due to a compact design and the potential use of space below the support structures. LFR technology uses flat or slightly curved mirrors to focus sunlight on to a linear receiver to boil water, generating 270 C to 500 C high-pressure direct steam to power the steam turbine genset. The direct steam technology eliminates the need for costly heat transfer fluids and heat exchangers. With simplified plant design, lower capital investment, and lower operational costs, LFR systems are among the most economical solar SCP technologies. 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Power is being sold for 26.9375 Euro cents per kWh for the first 25 years, and 21.5495 Euro cents per kWh thereafter. It covers an area of 5 hectares (12 acres).","developer":"Novatec Solar GmbH","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":622,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/622/photo\_puerto\_errado1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/622/thumb\_photo\_puerto\_errado1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/622/partner\_photo\_puerto\_errado1.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":38.283086,"longitude":-1.599939,"master\_project\_id":null,"name":"Puerto Errado 1 Thermosolar Power Plant","om\_contractor":"","organization":"","owner\_1":"Novatec Solar España S.L.","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.novatecsolar.com/49-1-PE-1.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1400,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Murcia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-01T01:29:21Z","updated\_at\_by\_admin":"2014-09-11T17:43:08Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Iberdrola S.A.U. & REE","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-10-07","approval\_status":1,"city":"Sanlúcar La Mayor","commissioning\_on":"2022-04-28","companion":"CSP Plant","construction\_on":null,"contact\_city":"Washington, DC","contact\_country":"United States","contact\_email":"comunicacion@solar.abengoa.com ","contact\_info\_visible":true,"contact\_name":"Allison Lenthall","contact\_phone":"+1 (202) 857-7816","contact\_state":"Washington, DC","contact\_street\_address":"1909 K Street, NW, Suite 840","contact\_zip":"20006","contractor\_1":"Abener - Teyma","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-10-07T21:26:00Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The PS20 solar plant consists of a 210-acre solar field made up of 1,255 heliostats designed by Abengoa Solar. Each heliostat reflects the solar radiation captured onto a receiver located at the top of a 541-foot tower to produce steam, which is generated into electricity inside a turbine. PS20 has the capacity to produce dispatchable energy with transitories thanks to its one-hour storage system.\r\n","developer":"","electronics\_provider":"Franco Tossi","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":623,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/623/ps20-sevilla-solar-tower.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/623/thumb\_ps20-sevilla-solar-tower.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/623/partner\_ps20-sevilla-solar-tower.jpg"}},"integrator\_company":"Abener - Teyma","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.38604,"longitude":-6.195441,"master\_project\_id":null,"name":"Planta Solar 20 Solar Power Plant (PS 20)","om\_contractor":"","organization":"","owner\_1":"Abengoa Solar","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.spanishnews.es/20090428-abengoa-solar-puts-its-ps20-solar-tower-into-operation-352/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":20000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Seville","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Heat Thermal Storage","technology\_type\_l1":"Heat Thermal Storage","technology\_type\_l2":"Heat Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-26T05:03:03Z","updated\_at\_by\_admin":"2014-01-20T18:26:20Z","updated\_by":null,"updated\_by\_email":null,"utility":"REE","utility\_type":"Investor Owned","vendor\_company":"Abengoa Solar","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Sanlúcar La Mayor","commissioning\_on":"2022-06-25","companion":"CSP Plant","construction\_on":"2022-01-01","contact\_city":"Washington, DC","contact\_country":"United States","contact\_email":"comunicacion@solar.abengoa.com ","contact\_info\_visible":true,"contact\_name":"Allison Lenthall","contact\_phone":"+1 (202) 857-7815","contact\_state":"Washington, DC","contact\_street\_address":"1909 K Street, NW, Suite 840","contact\_zip":"20006","contractor\_1":"Abener - Teyma","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-10-07T21:29:56Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The solar field occupies 148 acres and is composed of 624 heliostats, each being 1,291 sq. ft. Designed by Abengoa Solar, these heliostats concentrate the solar radiation they capture onto a receiver located at the top of a 377-foot tower. PS10 also features a 30-minute storage capability, which enables the plant to continue running under conditions of low solar radiation and no insolation.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"State/Provincial/Regional Grant","funding\_source\_3":"","funding\_source\_details\_1":"European Commission under FP5","funding\_source\_details\_2":"Andalusian Regional Government","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":624,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/624/PS20andPS10.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/624/thumb\_PS20andPS10.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/624/partner\_PS20andPS10.jpg"}},"integrator\_company":"Abener - Teyma","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":37.38604,"longitude":-6.195441,"master\_project\_id":"---\n- '623'\n","name":"Planta Solar 10 Solar Plant","om\_contractor":"AS","organization":"","owner\_1":"Abengoa Solar","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.abengoasolar.com/web/en/plantas\_solares/plantas\_propias/espana/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":11000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Seville","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Heat Thermal Storage","technology\_type\_l1":"Heat Thermal Storage","technology\_type\_l2":"Heat Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-26T23:44:56Z","updated\_at\_by\_admin":"2014-01-20T18:26:51Z","updated\_by":null,"updated\_by\_email":null,"utility":"REE","utility\_type":"Investor Owned","vendor\_company":"Abengoa Solar","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Alcazar de San Juan","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"","contact\_email":"mcortes@grupocobra.com, gpuerto@eyra.net","contact\_info\_visible":false,"contact\_name":"Manuel Cortes; Gonzalo Puerto","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Cobra Instalaciones y Servicios","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-10-07T21:46:53Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Technology:\tParabolic trough\r\nLand Area:\t 200 hectares\r\nSolar Resource:\t 2,208 kWh/m2/yr\r\nSource of Solar Resource:\tMeteo Station\r\nConstruction Job-Years:\t600\r\nAnnual O&M Jobs:\t40\r\nPPA/Tariff Rate:\t 27.0 Euro cents per kWh\r\nPPA/Tariff Period:\t 25 years\r\nroject Type:\tCommercial\r\n\r\nGeneration Offtaker(s):\tUnión Fenosa\r\n\r\nPlant Configuration\r\nSolar Field\r\nSolar-Field Aperture Area:\t 510,120 m²\r\n# of Solar Collector Assemblies (SCAs):\t 624\r\n# of Loops:\t 156\r\n# of SCAs per Loop:\t 4\r\nSCA Aperture Area:\t 817 m²\r\nSCA Length:\t 144 m\r\n# of Modules per SCA:\t12\r\nSCA Manufacturer (Model):\t Cobra Instalaciones y Servicios (Senertrough)\r\nMirror Manufacturer (Model):\tFlabeg (RP3)\r\n# of Heat Collector Elements (HCEs):\t11,232\r\nHCE Manufacturer:\tSchott\r\n# of HCEs:\t11,232\r\nHCE Manufacturer:\tSolel\r\nHeat-Transfer Fluid Type:\tDiphenyl/Diphenyl oxide\r\nSolar-Field Inlet Temp:\t 293°C\r\nSolar-Field Outlet Temp:\t 393°C\r\nSolar-Field Temp Difference:\t 100°C\r\n\r\nPower Block\r\nTurbine Capacity (Gross):\t 50.0 MW\r\nTurbine Capacity (Net):\t 50.0 MW\r\nTurbine Manufacturer:\tSiemens (Germany)\r\nPower Cycle Pressure:\t 100.0 bar\r\nCooling Method:\tWet cooling\r\nCooling Method Description:\tCooling towers\r\nTurbine Efficiency:\t 38.1% @ full load\r\nAnnual Solar-to-Electricity Efficiency (Gross):\t 16%\r\nFossil Backup Type:\tHTF heater\r\nBackup Percentage:\t 12%\r\nThermal Storage\r\nStorage Type:\t2-tank indirect\r\nThermal Storage Description:\t28,500 tons of molten salt. 375 MWh. Tanks are 14 m high and 36 m in diameter. ","developer":"ACS/Cobra Group","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":625,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.39114,"longitude":-3.209639,"master\_project\_id":null,"name":"Manchasol 2 Solar Power Plant","om\_contractor":"Cobra O&M","organization":"","owner\_1":"ACS/Cobra Group","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Electricity Generation: 158,000 MWh/yr (Expected/Planned)","primary\_reference":"http://www.nrel.gov/csp/solarpaces/project\_detail.cfm/projectID=8","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":50000,"size\_kwh":7.5,"size\_kwh\_hours":7,"size\_kwh\_minutes":30.0,"state":"Ciudad Real","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T07:48:31Z","updated\_at\_by\_admin":"2013-12-03T19:12:57Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Alcazar de San Juan","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"Spain","contact\_email":"mcortes@grupocobra.com, gpuerto@eyra.net","contact\_info\_visible":false,"contact\_name":"Manuel Cortes; Gonzalo Puerto","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Cobra Instalaciones y Servicios","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-10-07T21:56:30Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Field of parabolic trough solar collectors of around 500,000m2. 50MW. EPC.\r\nTransmission fluid: Thermal oil.\r\nMolten salt storage.\r\nSteam generation cycle.\r\nExpected production: 175GWh/year.\r\nOccupied area: 200Ha approx.\r\nHybridization with gas.","developer":"ACS/Cobra Group","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":626,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.39114,"longitude":-3.209639,"master\_project\_id":null,"name":"Manchasol 1 Solar Power Plant","om\_contractor":"Cobra O&M","organization":"","owner\_1":"ACS/Cobra Group","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Electricity Generation: 158,000 MWh/yr (Expected/Planned)","primary\_reference":"http://www.nrel.gov/csp/solarpaces/project\_detail.cfm/projectID=7","primary\_reference1":"http://cspworld.org/cspworldmap/manchasol-1","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":50000,"size\_kwh":7.5,"size\_kwh\_hours":7,"size\_kwh\_minutes":30.0,"state":"Ciudad Real","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T21:05:26Z","updated\_at\_by\_admin":"2013-12-03T19:10:16Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Alvarado","commissioning\_on":"2022-06-01","companion":"","construction\_on":"2022-07-01","contact\_city":"","contact\_country":"Spain","contact\_email":"jdelpico@samca.com, ctierra@samca.com","contact\_info\_visible":false,"contact\_name":"Javier del Pico; Carlos Tierra","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-10-07T22:21:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The La Florida plant has the capacity to generate 49.9 MW power, using parabolic trough collectors, enough to power 45,000 homes. It has been built to meet Spain's power consumption requirements through renewable sources. The plant is estimated to reduce more than 160,000 t of CO2 every year.\r\n\r\nThe plant is constituted in four parts - solar field, power block, thermal storage system and auxiliary systems.\r\n\r\nThe solar field comprises collector structure, mirrors, absorber tubes and thermal fluid system.\r\n\r\nThe length and absorption area of solar collector structures are 150 m and 822 m² respectively. The power block features steam generator, steam turbine, condenser and cooling towers. The capacity of the turbine is 49.9 MW. The auxiliary system consists of water treatment plants, a fire protection system, a liquid natural gas station, emergency generators and a transformer substation.\r\n\r\nThe plant is built on an approximated rectangular surface of 220 ha, which is occupied by 672 parabolic trough collectors with 225,792 mirrors and 550,000 m² of absorption area. It covers a surface equivalent to 220 soccer fields.","developer":"Renovables SAMCA","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":627,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/627/samca\_laflorida\_01.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/627/thumb\_samca\_laflorida\_01.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/627/partner\_samca\_laflorida\_01.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.814241,"longitude":-6.837627,"master\_project\_id":null,"name":"La Florida Solar Power Plant","om\_contractor":"Renovables SAMCA","organization":"","owner\_1":"Renovables SAMCA","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.smartplanet.com/blog/smart-takes/spain-overtakes-us-in-solar-power-with-la-florida-plant/9014","primary\_reference1":"http://www.power-technology.com/projects/lafloridasolarpowerp/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":49900,"size\_kwh":7.5,"size\_kwh\_hours":7,"size\_kwh\_minutes":30.0,"state":"Badajoz","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T18:35:56Z","updated\_at\_by\_admin":"2014-09-03T15:37:27Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"La Garrovilla","commissioning\_on":"2022-10-29","companion":"","construction\_on":"2022-07-01","contact\_city":"","contact\_country":"","contact\_email":"jdelpico@samca.com, ctierra@samca.com","contact\_info\_visible":false,"contact\_name":"Javier del Pico; Carlos Tierra","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-10-07T22:35:00Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"La Dehesa is a 49.9 MW concentrated solar power plant using a parabolic trough to radiate solar energy which is then stored with molten salts technology. The plant has 225,792 mirrors arranged in rows and 672 solar collectors which occupy a total length of 100 km. It is located in La Garovilla, Badajoz and is owned by Renovables SAMCA. With an annual production of 160 million kWh, La Dehesa supplies electricity for more than 45,000 homes, preventing the emission of 160,000 tons of carbon dioxide, the same amount a coal thermal plant would produce to provide the same amount of energy.","developer":"Renovables 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(approx):\t 387,000,000 Euros\r\nConstruction Job-Years:\t300\r\nAnnual O&M Jobs:\t40\r\nPPA/Tariff Type:\t Real Decreto 661/2007\r\nPPA/Tariff Rate:\t 27.0 Euro cents per kWh\r\nPPA/Tariff Period:\t 25 years\r\nPPA/Tariff Information:\tFeed-in Tariff\r\nProject Type:\tCommercial\r\n\r\nPlant Configuration\r\nSolar Field\r\nSolar-Field Aperture Area:\t 550,000 m²\r\n# of Solar Collector Assemblies (SCAs):\t 672\r\n# of Loops:\t 168\r\n# of SCAs per Loop:\t 4\r\nSCA Length:\t 150\r\n# of Modules per SCA:\t12\r\nSCA Manufacturer (Model):\t Sener (SenerTrough)\r\nSolar-Field Inlet Temp:\t 293°C\r\nSolar-Field Outlet Temp:\t 393°C\r\nSolar-Field Temp Difference:\t 100°C\r\n\r\nPower Block\r\nTurbine Capacity (Gross):\t 50.0 MW\r\nTurbine Capacity (Net):\t 50.0 MW\r\nOutput Type:\tSteam Rankine\r\nCooling Method:\tWet cooling\r\n\r\nThermal Storage Type:\t2-tank indirect 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Type:\tCommercial\r\n\r\nPlant Configuration\r\nSolar Field\r\nSolar-Field Aperture Area:\t 510,120 m²\r\n# of Solar Collector Assemblies (SCAs):\t 624\r\n# of Loops:\t 156\r\n# of SCAs per Loop:\t 4\r\nSCA Aperture Area:\t 817 m²\r\nSCA Length:\t 144 m\r\n# of Modules per SCA:\t12\r\nSCA Manufacturer (Model):\t Cobra Instalaciones y Servicios (SENERTROUGH)\r\nMirror Manufacturer (Model):\tFlabeg (RP3)\r\n# of Heat Collector Elements (HCEs):\t22,464\r\nHCE Manufacturer (Model):\tSolel (UVAC 2008)\r\nHCE Type (Length):\t Evacuated (4 m)\r\nHeat-Transfer Fluid Type:\tDiphenyl/Biphenyl oxide\r\nSolar-Field Inlet Temp:\t 293°C\r\nSolar-Field Outlet Temp:\t 393°C\r\nSolar-Field Temp Difference:\t 100°C\r\n\r\nPower Block\r\nTurbine Capacity (Gross):\t 49.9 MW\r\nTurbine Capacity (Net):\t 49.9 MW\r\nTurbine Manufacturer:\tSiemens (Germany)\r\nPower Cycle Pressure:\t 100.0 bar\r\nCooling Method:\tWet cooling\r\nCooling Method Description:\tCooling towers\r\nTurbine Efficiency:\t 38.1% @ full load\r\nAnnual Solar-to-Electricity Efficiency (Gross):\t 16%\r\nFossil Backup Type:\tHTF heater\r\nBackup Percentage:\t 12%\r\n\r\nThermal Storage\r\nStorage Type:\t2-tank indirect\r\nThermal Storage Description:\t28,500 tons of molten salt. 1,010 MWh. Tanks are 14 m high and 36 m in diameter. ","developer":"ACS/Cobra Group ","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":638,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.6194489,"longitude":-6.7962528,"master\_project\_id":null,"name":"Extresol 2 Solar Power Plant","om\_contractor":"Cobra","organization":"","owner\_1":"ACS/Cobra Group","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Electricity Generation: 158,000 MWh/yr (Expected/Planned)","primary\_reference":"http://www.nrel.gov/csp/solarpaces/project\_detail.cfm/projectID=11","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":50000,"size\_kwh":7.5,"size\_kwh\_hours":7,"size\_kwh\_minutes":30.0,"state":"Badajoz","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T07:47:19Z","updated\_at\_by\_admin":"2014-10-22T17:22:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Torre de Miguel Sesmero","commissioning\_on":"2022-08-01","companion":"","construction\_on":"2022-05-08","contact\_city":"","contact\_country":"Spain","contact\_email":"mcortes@grupocobra.com, amsalazar@grupocobra.com","contact\_info\_visible":false,"contact\_name":"Manuel Cortes; Ana Salazar","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Cobra Instalaciones y Servicios","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-10-07T23:49:24Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Technology:\tParabolic trough\r\nLat/Long Location:\t 38°39′ North, 6°44′ West\r\nLand Area:\t 200 hectares\r\nSolar Resource:\t 2,168 kWh/m2/yr\r\nSource of Solar Resource:\tMeteo Station\r\nConstruction Job-Years:\t600\r\nAnnual O&M Jobs:\t40\r\nPPA/Tariff Type:\t Real Decreto 661/2007\r\nPPA/Tariff Rate:\t 27.0 Euro cents per kWh\r\nPPA/Tariff Period:\t 25 years\r\nProject Type:\tCommercial\r\n\r\nPlant Configuration\r\nSolar Field\r\nSolar-Field Aperture Area:\t 510,120 m²\r\n# of Solar Collector Assemblies (SCAs):\t 624\r\n# of Loops:\t 156\r\n# of SCAs per Loop:\t 4\r\nSCA Aperture Area:\t 817 m²\r\nSCA Length:\t 144 m\r\n# of Modules per SCA:\t12\r\nSCA Manufacturer (Model):\t Cobra Instalaciones y Servicios (SENERTROUGH)\r\nMirror Manufacturer (Model):\tFlabeg (RP3)\r\n# of Heat Collector Elements (HCEs):\t22,464\r\nHCE Manufacturer (Model):\tSolel (UVAC 2008)\r\nHCE Type (Length):\t Evacuated (4 m)\r\nHeat-Transfer Fluid Type:\tDiphenyl/Biphenyl oxide\r\nSolar-Field Inlet Temp:\t 293°C\r\nSolar-Field Outlet Temp:\t 393°C\r\nSolar-Field Temp Difference:\t 100°C\r\n\r\nPower Block\r\nTurbine Capacity (Gross):\t 50.0 MW\r\nTurbine Capacity (Net):\t 50.0 MW\r\nTurbine Manufacturer:\tSiemens (Germany)\r\nPower Cycle Pressure:\t 100.0 bar\r\nCooling Method:\tWet cooling\r\nCooling Method Description:\tCooling towers\r\nTurbine Efficiency:\t 38.1% @ full load\r\nAnnual Solar-to-Electricity Efficiency (Gross):\t 16%\r\nFossil Backup Type:\tHTF heater\r\nBackup Percentage:\t 12%\r\n\r\nThermal Storage\r\nStorage Type:\t2-tank indirect\r\nThermal Storage Description:\t28,500 tons of molten salt. 1,010 MWh. Tanks are 14 m high and 36 m in diameter. 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Tanks are 14 m high and 36 m in diameter. 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661/2007\r\nPPA/Tariff Rate:\t 27.0 Euro cents per kWh\r\nPPA/Tariff Period:\t 25 years\r\nPPA/Tariff Information:\tFeed-in Tariff\r\nProject Type:\tCommercial\r\n\r\nPlant Configuration\r\nSolar Field\r\nSolar-Field Aperture Area:\t 510,120 m²\r\n# of Solar Collector Assemblies (SCAs):\t 624\r\n# of Loops:\t 156\r\n# of SCAs per Loop:\t 4\r\nSCA Aperture Area:\t 817 m²\r\nSCA Length:\t 144 m\r\n# of Modules per SCA:\t12\r\nSCA Manufacturer (Model):\t Sener (SENERtrough)\r\nMirror Manufacturer (Model):\tFlabeg (RP3)\r\n# of Heat Collector Elements (HCEs):\t22,464\r\nHCE Manufacturer (Model):\tSolel (UVAC 2008)\r\nHCE Type (Length):\t Evacuated (4 m)\r\nHTF Company:\tDiphenyl/Biphenyl oxide\r\nSolar-Field Inlet Temp:\t 293°C\r\nSolar-Field Outlet Temp:\t 393°C\r\n\r\nPower Block\r\nTurbine Capacity (Gross):\t 50.0 MW\r\nTurbine Capacity (Net):\t 50.0 MW\r\nTurbine Manufacturer:\tSiemens (Germany)\r\nOutput Type:\tSteam Rankine\r\nPower Cycle Pressure:\t 100.0 bar\r\nCooling Method:\tWet cooling\r\nCooling Method Description:\tCooling towers\r\nTurbine Efficiency:\t 38.1% @ full load\r\nFossil Backup Type:\tHTF heater\r\nBackup Percentage:\t 12% ","developer":"ACS/Cobra 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Type:\tCommercial\r\n\r\nPlant Configuration\r\nSolar Field\r\nSolar-Field Aperture Area:\t 510,120 m²\r\n# of Solar Collector Assemblies (SCAs):\t 624\r\n# of Loops:\t 156\r\n# of SCAs per Loop:\t 4\r\nSCA Aperture Area:\t 817 m²\r\nSCA Length:\t 144 m\r\n# of Modules per SCA:\t12\r\nSCA Manufacturer (Model):\t Sener (SenerTrough)\r\nMirror Manufacturer (Model):\tFlabeg (RP3)\r\n# of Heat Collector Elements (HCEs):\t22,464\r\nHCE Manufacturer (Model):\tSolel (UVAC 2008)\r\nHCE Type (Length):\t Evacuated (4 m)\r\nHeat-Transfer Fluid Type:\tDiphenyl/Biphenyl oxide\r\nSolar-Field Inlet Temp:\t 293°C\r\nSolar-Field Outlet Temp:\t 393°C\r\n\r\nPower Block\r\nTurbine Capacity (Gross):\t 50.0 MW\r\nTurbine Capacity (Net):\t 50.0 MW\r\nTurbine Manufacturer:\tSiemens\r\nTurbine Description:\tSST-700\r\nOutput Type:\tSteam Rankine\r\nPower Cycle Pressure:\t 100.0 bar\r\nCooling Method:\tWet cooling\r\nCooling Method Description:\tCooling towers\r\nTurbine Efficiency:\t 38.1% @ full load\r\nFossil Backup Type:\tHTF heater\r\nBackup Percentage:\t 12% ","developer":"ACS/Cobra Group","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":646,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":40.0830699,"longitude":-6.2495425,"master\_project\_id":null,"name":"Caceres Solar Power Plant","om\_contractor":"","organization":"","owner\_1":"ACS/Cobra Group","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Electricity Generation: 170,000 MWh / yr 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trough\r\nStatus:\tOperational\r\nCountry:\tSpain\r\nCity:\tOlivenza\r\nRegion:\tBadajoz\r\nLat/Long Location:\t 38°48′ 36.0″ North, 7°3′ 9.0″ West\r\nLand Area:\t 160 hectares\r\nSolar Resource:\t 2,052 kWh/m2/yr\r\nConstruction Job-Years:\t500\r\nAnnual O&M Jobs:\t50\r\nPPA/Tariff Type:\t Real Decreto 661/2007\r\nPPA/Tariff Rate:\t 27.0 Euro cents per kWh\r\nPPA/Tariff Period:\t 25 years\r\nPPA/Tariff Information:\tFeed-in Tariff\r\nProject Type:\tCommercial\r\n\r\nPlant Configuration\r\nSolar Field\r\nSolar-Field Aperture Area:\t 510,120 m²\r\n# of Solar Collector Assemblies (SCAs):\t 624\r\n# of SCAs per Loop:\t 4\r\nSCA Aperture Area:\t 817 m²\r\nSCA Length:\t 149\r\n# of Modules per SCA:\t12\r\nSCA Manufacturer (Model):\t Flagsol (SKAL-ET 150)\r\nHeat-Transfer Fluid Type:\tThermal Oil\r\nSolar-Field Inlet Temp:\t 293°C\r\nSolar-Field Outlet Temp:\t 393°C\r\nSolar-Field Temp Difference:\t 100°C\r\n\r\nPower Block\r\nTurbine Capacity (Gross):\t 50.0 MW\r\nTurbine Capacity (Net):\t 50.0 MW\r\nOutput Type:\tSteam Rankine\r\nPower Cycle Pressure:\t 100.0 bar\r\nCooling Method:\tWet cooling\r\nCooling Method Description:\tCooling Towers\r\nAnnual Solar-to-Electricity Efficiency (Gross):\t 15%\r\nFossil Backup Type:\tHTF Boiler","developer":"Elecnor, Aries, ABM 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Aries engineering. These projects will begin operations throughout 2012. In March 2010, Elecnor had in fact already signed a similar project finance agreement with 7 financial institutions valued at 225 million euros to build the first thermal solar power plant in Badajoz, also of 50 MW.","developer":"Elecnor/Aries/ABM AMRO ","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":649,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/649/Aste\_1B.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/649/thumb\_Aste\_1B.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/649/partner\_Aste\_1B.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.39114,"longitude":-3.209639,"master\_project\_id":null,"name":"Aste 1B Solar Power Plant","om\_contractor":"","organization":"","owner\_1":"Elecnor/Aries/ABM AMRO ","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Electricity Generation: 170,000 MWh/yr (Expected/Planned)","primary\_reference":"http://helioscsp.com/elecnor-seals-the-deal-to-finance-two-solar-power-plants-in-ciudad-real/","primary\_reference1":"http://www.nrel.gov/csp/solarpaces/project\_detail.cfm/projectID=217","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":50000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Ciudad Real","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T07:34:40Z","updated\_at\_by\_admin":"2013-12-03T18:51:04Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Alcázar de San Juan","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"Spain","contact\_email":"elecnor@elecnor.com","contact\_info\_visible":false,"contact\_name":"Communications and Marketing Elecnor","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Sener","contractor\_2":"","contractor\_3":"","cost\_CAPEX":346000000.0,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-10-09T04:45:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Elecnor has signed a project finance agreement valued at 475 million euros, alongside a group of 9 national and international institutions, to fund 2 solar power plants of 50 MW each in the municipal district of Alcázar de San Juan (Ciudad Real).\r\n\r\nElecnor finalizes financing for three thermal solar power projects which are currently being developed in Spain alongside the Eiser infrastructure fund and Aries engineering. These projects will begin operations throughout 2012. In March 2010, Elecnor had in fact already signed a similar project finance agreement with 7 financial institutions valued at 225 million euros to build the first thermal solar power plant in Badajoz, also of 50 MW.","developer":"Elecnor/Aries/ABM 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Park","contact\_country":"United States","contact\_email":"i.droghini@loccioni.com","contact\_info\_visible":true,"contact\_name":"Ignazio Droghini","contact\_phone":"301 982 0440","contact\_state":"MD","contact\_street\_address":"8400 Baltimore Avenue, Suite 333","contact\_zip":"20740","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-10-10T07:27:44Z","created\_by\_id":138,"debt\_investor":"","decommissioning\_on":null,"desc":"Loccioni Group, with the collaboration of Samsung SDI, has installed an EES in order to regulate Voltage in Low Voltage lines. \r\nPerformed functions are:\r\n- Voltage regulation (LV lines)\r\n- Power factor correction\r\n- Energy Storage\r\n","developer":"Loccioni 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333","contact\_zip":"20740","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-10-10T07:39:39Z","created\_by\_id":138,"debt\_investor":"","decommissioning\_on":null,"desc":"Loccioni Group, with the collaboration of Samsung SDI, has installed an EES in order to regulate Voltage in Low Voltage lines.\r\n\r\nPerformed functions are:\r\n- Voltage regulation (LV lines)\r\n- Power factor correction \r\n- Energy Storage ","developer":"Loccioni 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","decommissioning\_on":null,"desc":"Solar Field\r\nSolar-Field Aperture Area:\t 510,120 m²\r\n# of Solar Collector Assemblies (SCAs):\t 624\r\n# of Loops:\t 156\r\n# of SCAs per Loop:\t 4\r\nSCA Aperture Area:\t 817 m²\r\nSCA Manufacturer (Model):\t Sener (SenerTrough)\r\nHeat-Transfer Fluid Type:\tDiphenyl/Diphenyl Oxide\r\nSolar-Field Inlet Temp:\t 293°C\r\nSolar-Field Outlet Temp:\t 393°C\r\nSolar-Field Temp Difference:\t 100°C\r\n\r\nPower Block\r\nTurbine Capacity (Gross):\t 49.9 MW\r\nTurbine Capacity (Net):\t 49.9 MW\r\nOutput Type:\tSteam Rankine\r\nPower Cycle Pressure:\t 100.0 bar\r\nCooling Method:\tWet cooling\r\nTurbine Efficiency:\t 38.1% @ full load\r\nFossil Backup Type:\tNatural gas","developer":"TORRESOL ENERGY INVESTMENTS","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":653,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/653/valle1-valle2-2012-4\_600x400.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/653/thumb\_valle1-valle2-2012-4\_600x400.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/653/partner\_valle1-valle2-2012-4\_600x400.jpg"}},"integrator\_company":"SENER","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.605904,"longitude":-5.799405,"master\_project\_id":null,"name":"Arcosol 50 (Valle 1)","om\_contractor":"TORRESOL O&M","organization":"","owner\_1":"SENER","owner\_2":" Abu Dhabi Future Energy Company","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":60.0,"ownership\_percentage\_2":40.0,"performance":"","primary\_reference":"http://www.torresolenergy.com/TORRESOL/Press/torresol-launches-operations-spain","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":50000,"size\_kwh":7.0,"size\_kwh\_hours":7,"size\_kwh\_minutes":0.0,"state":"Cádiz","status":"Operational","street\_address":"A-389 Pk 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The thermosolar plant is composed of 2 phases of 180 MW, called Phase I and Phase II. Each phase is composed of 2 contiguous and independent plants of 90 MW each. The energy generated by the Pedro de Valdivia Thermosolar Plant will be injected into the SING, through two 220 kV double-circuit electric lines and one electric substation.\r\n","developer":"Grupo Ibereolica","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":654,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/654/solar.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/654/thumb\_solar.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/654/partner\_solar.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-22.345005,"longitude":-69.660706,"master\_project\_id":null,"name":"Pedro de Valdivia CSP Solar Plant","om\_contractor":"","organization":"","owner\_1":"Grupo Ibereolica","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Electricity Generation: 2,108,000 MWh/yr (Estimated)","primary\_reference":"http://www.nrel.gov/csp/solarpaces/project\_detail.cfm/projectID=252","primary\_reference1":"http://www.grupoibereolica.es/detalle\_proyecto.aspx?IdElemento=60","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":360000,"size\_kwh":10.5,"size\_kwh\_hours":10,"size\_kwh\_minutes":30.0,"state":"Antofagasta","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T00:36:35Z","updated\_at\_by\_admin":"2014-07-04T00:29:44Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Ghisonaccia","commissioning\_on":null,"companion":"","construction\_on":"2022-10-20","contact\_city":"","contact\_country":"France","contact\_email":"simon.benmarraze@solareuromed.com","contact\_info\_visible":false,"contact\_name":"Simon Benmarraze","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Habtoor Leighton Specon","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2013-10-10T20:17:31Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Alba Nova 1 is the first utility-scale demonstration project in France in the field of Concentrated Solar Power (CSP) demonstrating an innovative CSP Fresnel technology with Thermal energy storage capability developed by Solar Euromed . Alba Nova 1 is backed by Caisse des Dépots et Consignations, the French public sovereign fund and obtained a 20-year tariff obtained on a competitive basis through a national tender issued by the French Government and a guarantee over annual production provided by a recognized EPC contractor.","developer":"Solar Euromed","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Equity","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":656,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/656/photo\_alba\_nova.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/656/thumb\_photo\_alba\_nova.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/656/partner\_photo\_alba\_nova.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":42.016837,"longitude":9.403981,"master\_project\_id":null,"name":"Alba Nova 1 Solar Power Plant","om\_contractor":"","organization":"","owner\_1":"Solar 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(Net):\t 9.0 MW\r\nPower Cycle Pressure:\t 70.0 bar\r\nCooling Method:\tDry cooling\r\nCooling Method Description:\tAir cooled condenser","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":null,"funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":null,"gmaps":true,"hidden":false,"id":657,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":null,"is\_sub\_project":null,"iso":"N/A","latitude":42.455625,"longitude":2.06257,"master\_project\_id":null,"name":"Llo Solar Thermal 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Consoli","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-10-10T20:38:44Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Archimede is a parabolic trough plant operating in Sicily, Italy. The plant produces steam (4.72-MW equivalent) sent to a combined-cycle steam turbine rated at 130 MW. This parabolic trough system is the first using molten salt as the heat-transfer fluid. A 2-tank direct system will provide 6.5 hours of thermal storage.\r\n\r\n","developer":"ENEL","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":658,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/658/images.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/658/thumb\_images.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/658/partner\_images.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.1578584,"longitude":15.1837006,"master\_project\_id":null,"name":"Archimede Solar Power Plant","om\_contractor":"","organization":"","owner\_1":"ENEL","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.enelgreenpower.com/media/press/d/2010/07/at-priolo-enel-inaugurates-the-archimede-power-plant","primary\_reference1":"http://www.nrel.gov/csp/solarpaces/project\_detail.cfm/projectID=19","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":4720,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Sicily","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-11-22T22:30:19Z","updated\_at\_by\_admin":"2016-05-10T17:09:26Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"ENEL GEM","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Ait Baha","commissioning\_on":"2022-08-01","companion":"CSP","construction\_on":"2022-02-01","contact\_city":"Biasca","contact\_country":"Switzerland","contact\_email":"info@airlightenergy.com","contact\_info\_visible":true,"contact\_name":"Corporate Relations","contact\_phone":"+41918730505","contact\_state":"Ticino","contact\_street\_address":"Via Croce 1","contact\_zip":"6710","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":250000.0,"cost\_OPEX":null,"country":"Morocco","created\_at":"2013-10-10T20:44:05Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Airlight Energy has recently completed construction of the Ait Baha CSP plant in Agadir, Morocco. Estimated to produce 2,390 MWh/yr, the plant is owned by Italgen Maroc. The plant is designed to recover waste heat from the cement factory and provide additional heat at higher temperature to the existing 12MW ORC Generator. It uses a pebble stone storage system. ","developer":"Airlight Energy","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":660,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/660/TES\_Ait\_Baha.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/660/thumb\_TES\_Ait\_Baha.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/660/partner\_TES\_Ait\_Baha.JPG"}},"integrator\_company":"Airlight Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":30.218837,"longitude":-9.149128,"master\_project\_id":null,"name":"Ait Baha Plant Thermal Storage - Airlight Energy ","om\_contractor":"Italgen Maroc","organization":"Airlight Energy","owner\_1":"Italgen Maroc","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.airlightenergy.com/ait-baha-csp-pilot-plant/","primary\_reference1":"http://www.nrel.gov/csp/solarpaces/project\_detail.cfm/projectID=273","projected\_lifetime":"60.0","rdd\_status":"No","research\_desc":"Modelling and behavior prediction of the TES unit","research\_institution":"ETH Zurich, Switzerland","research\_institution\_link":"http://www.pre.ethz.ch/","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":650,"size\_kwh":9.0,"size\_kwh\_hours":9,"size\_kwh\_minutes":0.0,"state":"Agadir","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Heat Thermal Storage","technology\_type\_l1":"Heat Thermal Storage","technology\_type\_l2":"Heat Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-23T17:50:09Z","updated\_at\_by\_admin":"2014-08-12T19:06:38Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Airlight Energy","zip":""}},{"project":{"announcement\_on":"2022-07-01","approval\_status":2,"city":"Tennessee Colony","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"witt.duncan@apexcaes.com","contact\_info\_visible":true,"contact\_name":"Witt Duncan","contact\_phone":"(832) 413-4841","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-10-11T14:23:19Z","created\_by\_id":88,"debt\_investor":"","decommissioning\_on":null,"desc":"Development of the 317 MW compressed air energy storage facility with 96 hours of storage has been put on hold as of 10/2014. New information on development is anticipated in summer 2015.","developer":"Apex Compressed Air Energy Storage","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":661,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/661/Bethel\_poster\_22x17.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/661/thumb\_Bethel\_poster\_22x17.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/661/partner\_Bethel\_poster\_22x17.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":31.8354447,"longitude":-95.8388504,"master\_project\_id":null,"name":"Apex Bethel Energy Center","om\_contractor":"Wood 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per Loop:\t 4\r\nSCA Aperture Area:\t 817 m²\r\nSCA Manufacturer (Model):\t Sener (SenerTrough)\r\nHeat-Transfer Fluid Type:\tDiphenyl/Diphenyl Oxide\r\nSolar-Field Inlet Temp:\t 293°C\r\nSolar-Field Outlet Temp:\t 393°C\r\nSolar-Field Temp Difference:\t 100°C\r\n\r\nPower Block\r\nTurbine Capacity (Gross):\t 49.9 MW\r\nTurbine Capacity (Net):\t 49.9 MW\r\nOutput Type:\tSteam Rankine\r\nPower Cycle Pressure:\t 100.0 bar\r\nCooling Method:\tWet cooling\r\nTurbine Efficiency:\t 38.1% @ full load\r\nFossil Backup Type:\tNatural gas\r\n\r\nThermal Storage\r\nStorage Type:\t2-tank indirect\r\nThermal Storage Description:\t28,500 tons of molten 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It utilizes a SENER parabolic trough, a Flabeg RP3 mirror, and thermal oil as its heat transfer. \r\n\r\nAfter the system was commissioned, various legislation was passed in Spain which changed the projected economic value of the plant. ","developer":"NextEra, FPL","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":665,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/665/Project\_Profile\_TERMOSOL\_2-1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/665/thumb\_Project\_Profile\_TERMOSOL\_2-1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/665/partner\_Project\_Profile\_TERMOSOL\_2-1.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.192614,"longitude":-5.578123,"master\_project\_id":null,"name":"Termosol 1 Solar Power Plant","om\_contractor":"NextEra, FPL","organization":"","owner\_1":"NextEra, 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Pela","commissioning\_on":"2022-03-01","companion":"","construction\_on":"2022-03-01","contact\_city":"","contact\_country":"","contact\_email":"Info@nexteraresources.com","contact\_info\_visible":false,"contact\_name":"Neer","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-10-15T18:05:59Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Technology:\tParabolic trough\r\nLat/Long Location:\t 39°11′ 35.0″ North, 5°34′ 34.0″ West\r\nLand Area:\t 200 hectares\r\nElectricity Generation:\t 180,000 MWh/yr (Estimated)\r\nPPA/Tariff Type:\t Real Decreto 661/2007\r\nPPA/Tariff Rate:\t 27.0 Euro cents per kWh\r\nPPA/Tariff Period:\t 25 years\r\nPPA/Tariff Information:\tFeed-in Tariff\r\nProject Type:\tCommercial\r\n\r\nPlant Configuration\r\nSolar Field\r\nSolar-Field Aperture Area:\t 523,200 m²\r\n# of Solar Collector Assemblies (SCAs):\t 640\r\n# of Loops:\t 160\r\n# of SCAs per Loop:\t 4\r\nSCA Aperture Area:\t 817 m²\r\nSCA Manufacturer (Model):\t Sener (SENERtrough)\r\nMirror Manufacturer (Model):\tFlabeg (RP3)\r\nHeat-Transfer Fluid Type:\tThermal Oil\r\nSolar-Field Inlet Temp:\t 293°C\r\nSolar-Field Outlet Temp:\t 393°C\r\n\r\nPower Block\r\nTurbine Capacity (Gross):\t 50.0 MW\r\nTurbine Capacity (Net):\t 50.0 MW\r\nOutput Type:\tSteam Rankine\r\nCooling Method:\tWet cooling\r\nFossil Backup Type:\tHTF Heaters (3x16MWt)","developer":"NextEra, 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in the Indian state of Rajasthan.\r\n\r\nThe steam turbines of type SST-700 are intended for the Godawari, Abhijeet and Diwakar & KVK parabolic trough solar power plants. With a total rating of 300 megawatts (MW), these concentrating solar power plants will make a contribution to meeting India’s growing electricity demand from solar power when they go on line in the spring of 2013.\r\n\r\nAll four concentrated power plant projects in the state of Rajasthan are being constructed as part of the Jawaharlal Nehru National Solar Mission (JNNSM), the Indian government’s ongoing program for promoting solar power. The program envisages installing up to 20 gigawatts of solar power capacity in India by the year 2022.","developer":"KVK Energy Ventures Ltd","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":668,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":27.3689942,"longitude":71.7474198,"master\_project\_id":null,"name":"KVK Energy Solar Project","om\_contractor":"Lanco Solar","organization":"","owner\_1":"KVK Energy Ventures 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Solar","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"India","created\_at":"2013-10-16T19:45:10Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This project has been delayed.\r\n\r\nSiemens Energy has been awarded three orders by different customers to supply a total of four steam turbine generator units for concentrating solar thermal power plants in the Indian state of Rajasthan.\r\n\r\nThe steam turbines of type SST-700 are intended for the Godawari, Abhijeet and Diwakar & KVK parabolic trough solar power plants. With a total rating of 300 megawatts (MW), these concentrating solar power plants will make a contribution to meeting India’s growing electricity demand from solar power when they go on line in the spring of 2013.\r\n\r\nAll four concentrated power plant projects in the state of Rajasthan are being constructed as part of the Jawaharlal Nehru National Solar Mission (JNNSM), the Indian government’s ongoing program for promoting solar power. The program envisages installing up to 20 gigawatts of solar power capacity in India by the year 2022.","developer":"Lanco Solar","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":670,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":27.3689942,"longitude":71.7474198,"master\_project\_id":null,"name":"Diwakar CSP Plant","om\_contractor":"","organization":"","owner\_1":"Lanco Infratech ","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://helioscsp.com/siemens-wins-orders-for-india-concentrating-solar-thermal-power-plants/","primary\_reference1":"http://www.lancogroup.com/DynTestform.aspx?pageid=64","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Rajasthan","status":"Announced/Never Built","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T06:25:18Z","updated\_at\_by\_admin":"2016-05-16T19:18:54Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Beijing","commissioning\_on":"2022-08-01","companion":"Concentrating Solar Power (CSP) Tower","construction\_on":"2022-07-01","contact\_city":"","contact\_country":"China","contact\_email":"duqian@mail.iee.ac.cn","contact\_info\_visible":false,"contact\_name":"Fengli Du","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-10-16T20:55:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Land Area:\t 13 acres\r\nSolar Resource:\t 1,290 kWh/m2/yr\r\nProject Type:\tDemonstration and experimental platform\r\n\r\nPlant Configuration\r\nSolar Field\r\nHeliostat Solar-Field Aperture Area:\t 10,000 m²\r\n# of Heliostats:\t 100\r\nHeliostat Aperture Area:\t 100.0 m²\r\nHeliostat Manufacturer:\t Himin Solar\r\nHeliostat Description:\t64 facets, each facet 1.25x1.25 m2\r\nTower Height:\t118 m\r\nReceiver Manufacturer:\tXi’an Jiaotong University, Dongfang Boiler Group Co. Ltd.\r\nReceiver Type:\tCavity Receiver\r\nHeat-Transfer Fluid Type:\tWater/Steam\r\nReceiver Inlet Temp:\t 104C\r\nReceiver Outlet Temp:\t 400C\r\n\r\nPower Block\r\nTurbine Capacity (Gross):\t 1.5 MW\r\nTurbine Capacity (Net):\t 1.5 MW\r\nTurbine Manufacturer:\tHangzhou Steam Turbine Company\r\nOutput Type:\tSteam Rankine\r\nCooling Method:\tWet cooling\r\nAnnual Solar-to-Electricity Efficiency (Gross):\t 13.7%\r\nFossil Backup Type:\tOil-fired boiler\r\n\r\nThermal Storage Description:\tTwo stages: saturated steam/oil","developer":"Institute of Electrical Engineering of Chinese Academy of Sciences","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":671,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/671/111111111.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/671/thumb\_111111111.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/671/partner\_111111111.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":40.456657,"longitude":115.974978,"master\_project\_id":null,"name":"Beijing Badaling Solar Tower - Institute of Electrical Engineering of Chinese Academy of Sciences","om\_contractor":"","organization":"","owner\_1":"Institute of Electrical Engineering of Chinese Academy of Sciences ","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"1,950 MWh/yr","primary\_reference":"http://www.nrel.gov/csp/solarpaces/project\_detail.cfm/projectID=253","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1500,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Yanqing County","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Heat Thermal Storage","technology\_type\_l1":"Heat Thermal Storage","technology\_type\_l2":"Heat Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-01T05:18:08Z","updated\_at\_by\_admin":"2013-12-03T18:32:39Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-03-18","approval\_status":1,"city":"Delingha","commissioning\_on":"2022-08-27","companion":"","construction\_on":"2022-11-28","contact\_city":"","contact\_country":"China","contact\_email":"solarinfo@supcon.com","contact\_info\_visible":false,"contact\_name":"solarinfo","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":119992500.0,"cost\_OPEX":null,"country":"China","created\_at":"2013-10-16T21:03:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Delhi 50MW tower solar thermal station is the first commercial operated tower solar thermal power station of China. The project uses a small mirror developed by SUPCON along with the tower solar thermal power technology of modular design, to achieve the domestication and industrialization of all equipment with the characteristics of advanced technology, high efficiency, reliable performance, and good economic benefits.\r\n\r\nThe purpose of SUPCON SOLAR Delhi project is to demonstrate the technological and economic feasibility of a CSP plant in China, and promote the development of CSP industry in China.\r\n\r\n10 MW of Delhi is currently operational. ","developer":"Zhejiang Supcon Solar","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":672,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/672/8.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/672/thumb\_8.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/672/partner\_8.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.369436,"longitude":97.360985,"master\_project\_id":null,"name":"Supcon Power Tower Solar Project","om\_contractor":"","organization":"","owner\_1":"Supcon 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PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"Scott McGregor, CEO of REDT","contact\_phone":"+44 (0) 207121 6100","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Portugal","created\_at":"2013-10-18T18:52:57Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project aims to develop control strategies to store energy in Building Integrated PV (BIPV) installations.\r\n\r\nThe University of Evora is the principal partner and host for the system, which has been installed in a building on the university's agriculture and animal husbandry campus in Valverde, just outside Evora. \r\n\r\nThe system will provide stored solar power to the facility there.\r\n\r\nThe European Commission chose REDT to build and provide its new flow battery system for this PVCROPS project, which is administered out of the Polytechnica University of Madrid and is included in the EU Seventh Framework Programme (FP7). \r\n\r\nHigh round trip efficiency >80%.","developer":"REDT","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":674,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/674/redt.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/674/thumb\_redt.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/674/partner\_redt.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.573272,"longitude":-7.90393,"master\_project\_id":null,"name":"PVCROPS Evora 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said.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":675,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/675/6-710a.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/675/thumb\_6-710a.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/675/partner\_6-710a.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.2408334,"longitude":-0.9429902,"master\_project\_id":null,"name":"La Muela pumped-storage 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Resource:\t 902 kWh/m2/yr\r\nProject Type:\tDemonstration\r\n\r\nPlant Configuration\r\nSolar Field\r\nHeliostat Solar-Field Aperture Area:\t 17,650 m²\r\n# of Heliostats:\t 2,153\r\nHeliostat Aperture Area:\t 8.2 m²\r\nTower Height:\t60 m\r\nReceiver Manufacturer:\tKraftanlagen München\r\nHeat-Transfer Fluid Type:\tAir\r\nReceiver Outlet Temp:\t 680C\r\nPower Block\r\nTurbine Capacity (Gross):\t 1.673 MW\r\nTurbine Capacity (Net):\t 1.5 MW\r\nTurbine Manufacturer:\tSiemens\r\nCooling Method:\tDry cooling\r\n","developer":"Kraftanlagen München ; German Aerospace Center, Solar-Institute 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The power plant is equipped with four reversible Francis pump-turbines, each rated at 216 MW in the generating mode, and 197 MW in pumping mode. Units 1 and 2 have been in operation since 1995, and that time Chaira was still first in the world as regards the highest head for a single-stage pump turbine (690 m generating and 701 pumping). Units 3 and 4 came online in 1999. The pump-turbines and motor - generators were supplied by Toshiba, and three of them were manufactured under Japanese supervision in Bulgaria. The upper compensating basin for Chaira is the Belmeken reservoir that is connected to the Chaira pumped storage hydro power plant by two headrace tunnels with a diameter of 4.20 m and two penstocks with diameter 4.40 m, reducing to 4.20 m.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":677,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/677/220px-PAVECChaira.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/677/thumb\_220px-PAVECChaira.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/677/partner\_220px-PAVECChaira.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":42.1927654,"longitude":24.3335662,"master\_project\_id":null,"name":"Chaira Hydro Power Plant","om\_contractor":"","organization":null,"owner\_1":"NEK EAD","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.nek.bg/cgi?d=1434","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":788000,"size\_kwh":8.5,"size\_kwh\_hours":8,"size\_kwh\_minutes":30.0,"state":"Belmeken dam","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:44:32Z","updated\_at\_by\_admin":"2014-07-02T22:35:36Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-10-21","approval\_status":0,"city":"Belmeken ","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"nek@nek.bg","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Bulgaria","created\_at":"2013-10-21T21:09:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project receives its water from the Belmeken Reservoir and has 5 individual turbines with a nominal output of around 75 MW which can deliver up to 375 MW of power, as well as 2 pumps with an installed capacity of 104 MW. It is part of the Belmeken-Chaira-Sestrimo Hydropower Cascade.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":678,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":42.1666667,"longitude":23.8,"master\_project\_id":null,"name":"Belmeken Hydro Power Plant","om\_contractor":"","organization":null,"owner\_1":"NEK EAD","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.nek.bg/cgi?d=1432","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":104000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Pazardzhik","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:44:18Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Untergriesbach ","commissioning\_on":null,"companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"Austria","contact\_email":"eveline.fitzinger@verbund.com","contact\_info\_visible":false,"contact\_name":"Eveline Fitzinger","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-10-22T18:19:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"With the exception of the upper reservoir situated between the suburbs of Gottsdorf and Riedl, the power plant will be built completely underground and hence not be visible from the outside. The two pump turbines, each with a capacity of 150 megawatt (MW), will be erected in a subterranean cavern at a depth of 250 metres (m) in the \"Donauleiten\" nature protection area.\r\n\r\nThe project will contribute significantly towards strengthening the regional economy. Once engineering details and ecological assessments have been completed, approval procedures will commence in mid 2011. Once the project has been approved, as expected, construction is to begin in 2015 and commissioning is planned for 2019.\r\n\r\nInvestment volume: 350 million Euro","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":680,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/680/113D2041872144B784168E1D8179FE93.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/680/thumb\_113D2041872144B784168E1D8179FE93.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/680/partner\_113D2041872144B784168E1D8179FE93.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.5750459,"longitude":13.6694984,"master\_project\_id":null,"name":"Riedl Energy Storage Plant","om\_contractor":"","organization":null,"owner\_1":"VERBUND AG","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.verbund.com/pp/en/pumped-storage-power-plant/riedl","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Voltage Support","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":300000,"size\_kwh":11.6666666666667,"size\_kwh\_hours":11,"size\_kwh\_minutes":40.0,"state":"Bavaria","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-17T23:15:01Z","updated\_at\_by\_admin":"2016-05-17T23:15:01Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Rottau","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"robert.zechner@verbund.com","contact\_info\_visible":false,"contact\_name":"Robert Zechner","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2013-10-22T20:26:41Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In the 1930s, Allgemeinen Elektricitätsgesellschaft (AEG) and Alpen-Elektrowerke AG (AEW) developed projects for power plants near Malta. Plans of the Österreichische Bundesbahnen followed after 1945. In 1952, Österreichische Draukraftwerke AG (ÖDK) carried out water and energy-related tests and created a plan for the utilisation of the Malta and Gößbäche with a three-stage power plant group. A dissertation written in 1956 at the technical university in Graz by Erich Magnet with the title \"Winter Storage Plant Inner Maltatal-Kolbnitz\" was used by Österreichische Draukraftwerke AG and proved to be very important for the development of the project.\r\n\r\nThe water rights negotiations for the Malta upper stage and Malta main stage power plants took place in 1964. The approval of the water authorities was granted in 1965. Heavy protests, especially from the Austrian Society for Nature Conservation, followed when the project area lost its nature conservation status. The conservationists called for the erection of nuclear power stations as an alternative to storage power plants. The detailed planning commenced in 1971 following the positive construction decision.\r\n\r\nIn addition to covering demand peaks, it was required that the power plant group Malta must, at all times, be in a position to provide reserve power for a failed nuclear power plant. The earlier-than-expected issuing of the building decision and the new requirements created major challenges for the planning and construction departments. In addition, the first machine unit for the main stage was to be commissioned two years earlier than expected on 1 December 1978. The planning was carried out, inter alia, by Construction Director Kurt Baustädter, Rudolf Mußnig, Kurt Landl, Heiner Ludescher and Georg Lichtenegger from Draukraftwerke AG. External planners, such as the civil technology company Ehß, were also engaged. The architectural work was carried out by Rudolf Nitsch from Klagenfurt.\r\n\r\nAfter a series of geological tests, the final location for Rottau power plant was fixed in 1973. The excavation pit reached a depth of approximately 30 metres below the valley basin and 25 metres below the groundwater level. Extensive safety measures were necessary to prevent the penetration of groundwater. The first machine unit was commissioned in Rottau power plant in late autumn 1976. The storage pumps were commissioned in summer 1978. The capacity of 730,000 kW corresponds to the capacity Zwentendorf nuclear power plant would have had.","developer":"Allgemeinen Elektricitätsgesellschaft (AEG) and Alpen-Elektrowerke AG (AEW)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":682,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/682/5B577C77F0464594B2FBDC5534EB00BB.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/682/thumb\_5B577C77F0464594B2FBDC5534EB00BB.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/682/partner\_5B577C77F0464594B2FBDC5534EB00BB.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":46.87241,"longitude":13.32653,"master\_project\_id":null,"name":"Malta Main Stage Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"VERBUND Hydro Power AG","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.verbund.com/pp/en/pumped-storage-power-plant/malta-main-stage","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":730000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Carynthia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:44:06Z","updated\_at\_by\_admin":"2013-11-30T19:08:30Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Limberg","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Austria","contact\_email":"","contact\_info\_visible":false,"contact\_name":"Wolfgang Syrowatka","contact\_phone":"+43 (0)50313-22282","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2013-10-22T21:44:29Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"History of the Power Plant\r\n\r\nThe initial planning for the power plant facilities in the Kaprun Valley date back to the \"centralisation project\" of the Allgemeine Elektricitätsgesellschaft (AEG) Berlin [General Power Company]. The planned pooling of all the water from the Hohe Tauern into the Kaprun Valley was interrupted due to the outbreak of the global economic crisis at the beginning of the 1930's. With Austria's annexation to the German Reich in the spring of 1938, the project was once again made a high priority and re-designed under the head of the newly founded Alpen Elektrowerke AG (AEW [Alpine Power Company]), Hermann Grengg. The new plans contemplated a two stage pumped storage power plant with an upper storage reservoir on the Mooserboden and Wasserfallboden storage lakes above the Limberg Alp. The construction work began with the construction of new and expansion of existing access roads to the construction sites, in particular to the Kapruner Winkel [Kaprun Corner], the building site of the Hauptstufe [main stage] power house, and to the Limberg Alp. When the war ended, the Hauptstufe power house and a makeshift dam on the Wasserfallboden were ready for operation.\r\n\r\nConstruction of the Oberstufe [upper stage] power house could not begin, however until completion of the Limberg dam, which was to connect airside to the new structure. In the final phase of the work on the barrier, more and more attention was given to the archtectonic design of the Limberg power house. To this end, an invitation to tender was held to design of the crown of dam and powerhouse with architect Harald Bauer's design being selected. For the power house however, the third-placed architect Edith Lassmann's design was selected.\r\n\r\nThe contract was awarded at the beginning of 1951 and the excavation work for the power house to be attached to the nearly completed dam began immediately thereafter. Between May and August 1951 alone, around 10,000 m³ of rock was removed from the area of the foundations for the new power house. The construction materials were transported via a tow-railway from the Bruck/Fusch station to the Kapruner Winkel and from there taken to the Limberg site with a cement cable railway.\r\n\r\nIn 1953 the construction work on the main structure was completed. Construction on the stilling basin continued until June 1954 since the final form was not set until after extensive studies and model tests had been carried out by the planning department of Tauernkraftwerke AG.\r\n\r\nThe first machine set was commissioned on 14 November 1954, the second on1 December 1955. Both of the Möll connecting bridge pumps in the pump cave next to the Drossensperre retaining wall followed on 28 May 1956.\r\n\r\nThe barracks, equipment and auxiliary cable railway set up for the construction of the dams and power house were removed after construction was completed.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":687,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/687/2F56BBD1E39846FA8F91913D95748906.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/687/thumb\_2F56BBD1E39846FA8F91913D95748906.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/687/partner\_2F56BBD1E39846FA8F91913D95748906.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":47.3648489,"longitude":12.6417225,"master\_project\_id":null,"name":"Kaprun Upper Stage Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"VERBUND Hydro Power AG","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.verbund.com/pp/en/pumped-storage-power-plant/kaprun-upper-stage","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":113000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Salzburg","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:43:59Z","updated\_at\_by\_admin":"2013-11-13T20:56:32Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Hausling","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Austria","contact\_email":"wolfgang.syrowatka@verbund.com","contact\_info\_visible":false,"contact\_name":"Wolfgang Syrowatka","contact\_phone":"+43 (0)50313-22282","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2013-10-22T21:56:26Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"History of the Power Plant\r\n\r\nThe 35 metre deep shaft structure of the Häusling power house consists of a freestanding reinforced concrete cylinder with an outside diameter of 32.8 metres, which is founded entirely on rock. The building has no direct anchoring to the rock of the slope behind it. Hydraulic cushioning is built into the ground floor and the first floor on the mountain side to prevent any carryover of tension - a construction method that was developed based on experience gained in the construction of the Roßhag power house. The roof of the machine hall is connected to the slope by means of an anchor and gutter beam that can be walked on that can be used to channel water from the slope and roof to the drainage canal via a drop shaft.\r\n\r\nThe buildings are made of coated in situ concrete using prefabricated concrete elements in the area of the roof edges. \r\nThe machine hall has a concrete ribbed floor and a light coating on the inside. The floors and the lower part of the walls are equipped with a covering of red clinker panels.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":688,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/688/4EDE618F3BAA4F41BF26419B3EC33A1C\_\_1\_.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/688/thumb\_4EDE618F3BAA4F41BF26419B3EC33A1C\_\_1\_.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/688/partner\_4EDE618F3BAA4F41BF26419B3EC33A1C\_\_1\_.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":47.14584,"longitude":11.96699,"master\_project\_id":null,"name":"Häusling Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"VERBUND Hydro Power AG","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.verbund.com/pp/en/pumped-storage-power-plant/haeusling","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":360000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Tyrol","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:43:53Z","updated\_at\_by\_admin":"2013-11-13T20:56:42Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Kraftwerk Roßhag","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Austria","contact\_email":"wolfgang.syrowatka@verbund.com","contact\_info\_visible":true,"contact\_name":"Wolfgang Syrowatka","contact\_phone":"+43 (0)50313-22282","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2013-10-22T22:08:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"History of the Power Plant\r\n\r\nSince Roßhag power plant is located in an avalanche-prone area, it was necessary for the entire construction to be carried out with appropriately solid material, whereby the construction elements are able to withstand a pressure of 20 to 50 t/m². A total of ten deep borehole explosions had to be carried out in the excavation of the construction pit. The building is in paint-ready, in-situ concrete, supplemented by prefabricated concrete units, executed and divided into three blocks of roughly equal lengths by means of expansion joints. The roof over the machinery hall comprises prefabricated, reinforced concrete components. The uphill-facing distribution lines were embedded in a solid concrete block.\r\n\r\nStrain was nevertheless caused by the encasing in concrete of the pumps and turbine coils, as well as the firm anchoring of the building with the rock. In the surface construction, pillars were covered with concrete at intervals of some 6 m and connected via two 8 or 15 m reinforced concrete girders that lay across the operating floor. The lower girder is connected to the rock by means of high tensile bars; the upper girder serves for slope stabilisation and simultaneously forms the uphill support for the roofing slab. The flat roofs are landscaped with vegetation. The concrete surfaces have a light-coloured interior coating; the floors of the machinery hall and the upper part of the walls are clad with red clinker slabs. The closures are designed as armoured doors.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":689,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/689/535E165424CE4D47A6EB00EC173E0DF6.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/689/thumb\_535E165424CE4D47A6EB00EC173E0DF6.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/689/partner\_535E165424CE4D47A6EB00EC173E0DF6.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":47.0867914,"longitude":11.7738871,"master\_project\_id":null,"name":"Roßhag Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"VERBUND Hydro Power AG","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.verbund.com/pp/en/pumped-storage-power-plant/rosshag","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":231000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Tyrol","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:43:47Z","updated\_at\_by\_admin":"2013-11-13T20:55:48Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-03-21","approval\_status":1,"city":"Toulouse","commissioning\_on":"2022-11-06","companion":"","construction\_on":"2022-02-06","contact\_city":"PARIS LA DEFENSE CEDEX","contact\_country":"France","contact\_email":"jean-gabriel.steinmetz@cofelyineo-gdfsuez.com","contact\_info\_visible":true,"contact\_name":"Jean-Gabriel Steinmetz","contact\_phone":"+33682564835","contact\_state":"PARIS","contact\_street\_address":"1 PLACE DES DEGRES","contact\_zip":"92059","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":5600000.0,"cost\_OPEX":null,"country":"France","created\_at":"2013-10-23T08:16:26Z","created\_by\_id":141,"debt\_investor":"","decommissioning\_on":null,"desc":"Research project of a micro-grid including 170kWp of solar panels, 15kW of wind generation and high efficiency power conversion systems connected to a DC-bus with an energy storage system (battery + flywheels). An Energy Management System drives the ESS in order to minimize energy costs for the area and use of public AC grid. Flywheels (10kW/10kWh) are developed by LEVISYS and are magnetically levitated with passive magnets.\r\n","developer":"COFELY INEO","electronics\_provider":"CIRTEM","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"French Environment and Energy Management Agency (ADEME)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":694,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/694/DSC00963.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/694/thumb\_DSC00963.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/694/partner\_DSC00963.jpg"}},"integrator\_company":"COFELY INEO (SCLE SFE)","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":43.6487455,"longitude":1.4638675,"master\_project\_id":null,"name":"Smart ZAE Flywheel Project - COFELY INEO","om\_contractor":"","organization":"COFELY INEO","owner\_1":"COFELY INEO","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://scle-sfe.fr/en/Smart-ZAE/33\_5\_17/","primary\_reference1":"https://www.engie.com/en/news/smart-grids-cofely-ineo-innovative-technology-developments-toulouse/","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"LAPLACE research weave a \"continuum of activities that includes production, transportation, management, conversion and use of electricity\", covering all aspects from materials research to the development of processes and systems.","research\_institution":"LAPLACE (CNRS)","research\_institution\_link":"www.enseeiht.fr/fr/recherche/laplace.html‎","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":100,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Midi Pyrenées","status":"Operational","street\_address":"25 chemin de Paleficat","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2018-02-18T21:40:15Z","updated\_at\_by\_admin":"2013-12-04T22:12:41Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"Investor Owned","vendor\_company":"LEVISYS","zip":"31204"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Fort Hunter Liggett","commissioning\_on":"2022-12-01","companion":"","construction\_on":"2022-08-01","contact\_city":"Ripon","contact\_country":"United States","contact\_email":"sankar@tri-technic.com","contact\_info\_visible":true,"contact\_name":"Narayanan Sankar","contact\_phone":"9199853723","contact\_state":"CA","contact\_street\_address":"441 Doak Blvd","contact\_zip":"95366","contractor\_1":"Tri-Technic Inc.","contractor\_2":"","contractor\_3":"","cost\_CAPEX":4000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-10-23T23:26:23Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This design-build Request for Proposal (RFP) provides for the design and construction of a 1 MW Grid Battery Energy Storage System and structure located at the Cantonment area of Fort Hunter Liggett, CA. The project shall be designed and constructed to store excess electrical power generated during the day into the battery energy storage system, and discharge the electrical power at night into the distribution grid of the base.\r\n\r\n","developer":"Tri-Technic Inc","electronics\_provider":"Siemens, Lawrence Berkeley National Labs","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":695,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/695/FHL.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/695/thumb\_FHL.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/695/partner\_FHL.png"}},"integrator\_company":"Tri-Technic Inc","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":36.0079494,"longitude":-121.235173,"master\_project\_id":null,"name":"Fort Hunter Liggett Battery Storage Project","om\_contractor":"","organization":null,"owner\_1":"Fort Hunter Liggett, US Army","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.fbo.gov/index?s=opportunity&mode=form&tab=core&id=5d53b9e83916cd6e07cd42858eafe291","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"This project is intended to demonstrate the use of day-ahead optimization and real-time control to plan and implement charging/discharging schedules for a system comprised of a 2 MW photovoltaic generation and 1 MWh electric storage.","research\_institution":"NREL, Lawrence Berkeley National Labs","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Electric Bill Management with Renewables","service\_use\_case\_4":"On-Site Power","service\_use\_case\_5":"Frequency Regulation","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":1000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"Building 238, California Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-10-31T18:26:26Z","updated\_at\_by\_admin":"2014-10-31T18:26:26Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"SAFT","zip":" 93928-7000"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Malta Hauptstufe","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Austria","contact\_email":"robert.zechner@verbund.com","contact\_info\_visible":false,"contact\_name":"Robert Zechner","contact\_phone":"+43 (0)50313-38043","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2013-10-24T00:24:28Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"History of the Power Plant\r\n\r\nThe first plans for the energy-technical utilisation of the waters at the upper end of the Malta Valley, which is known for its extremely high precipitation levels, date back to the 1930s. The decision by Österreichische Draukraftwerke AG (ÖDK) to construct the three-stage Malta power plant, however, did not follow until 1957. The power plants comprise an upper stage with Kölnbrein reservoir and Galgenbichl power house, the main stage with Galgenbichl reservoir in the upper Malta valley between Gamskarnock and Lausnock, the main stage power house in Rottau near Kolbnitz in the Möll valley as well as the lower stage with a diversion channel in the Möll valley and Möllbrücke power house in the Drau valley.\r\n\r\nGiven that it had only been established for a short time, ÖDK did not, however, have the financial resources necessary to construct the Reißeck, Kreuzeck and Malta power plants at the same time. For this reason, detailed planning did not commence until 1961 following the completion of the Reißeck-Kreuzeck power plants. In 1965, the Malta-Upper Stage and Malta-Main Stage projects were approved by the water authorities.\r\n\r\nThe construction work for Galgenbichl power house followed after commencement of work on the Kölnbrein Dam and the Galgenbichl reservoir. The construction warehouse was extended in April 1974 and work on the development of the construction site commenced. Machinery and equipment from the neighbouring construction site at Galgenbichl Dam were used during the construction period.\r\n\r\nThe excavation work commenced in the east section of the power house, and due to the tight time schedule, continued through winter 1974/75. The work to stabilise the 40-metre cliff to the west of the power house to which parts of the building are attached proved to be a major challenge.\r\nAn external firm was commissioned to supply and prepare 800 tons of twisted ribbed steel so as to save time by working parallel. In spite of weather-related delays, work on the assembly of the first machine commenced on 1 September 2022 and the assembly of the second machine followed in 1976.\r\n\r\nThe power house was handed over to ÖDK on 1 September 1976. The finishing work continued until spring of the following year.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":696,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/696/5B577C77F0464594B2FBDC5534EB00BB\_\_1\_.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/696/thumb\_5B577C77F0464594B2FBDC5534EB00BB\_\_1\_.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/696/partner\_5B577C77F0464594B2FBDC5534EB00BB\_\_1\_.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":47.0791667,"longitude":13.3391667,"master\_project\_id":null,"name":"Malta Upper Stage Pumped Storage 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Toronto, the system will be situated in Lake Ontario at a depth of 80m.","developer":"Hydrostor","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":717,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":43.582387,"longitude":-79.416845,"master\_project\_id":null,"name":"Toronto Hydrostor UCAES Demonstration 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The energy is discharged from the system by releasing the air stored underwater to drive a turbine recreating electricity when it is most needed - either to meet daily demand peaks or to cover periods of calm winds or cloud cover that prevent power from being harnessed.\r\n","developer":"Hydrostor","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":718,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":12.4333333,"longitude":-69.9166667,"master\_project\_id":null,"name":"Hydrostor UCAES Aruba Project","om\_contractor":"","organization":null,"owner\_1":"Hydrostor","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.prnewswire.com/news-releases/hydrostor-announces-partnership-for-underwater-energy-storage-in-aruba-228957251.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":1000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Aruba","status":"Contracted","street\_address":"Vader Piet Windpark","systems\_integration":"","technology\_classification":"","technology\_type":"Modular Compressed Air Storage","technology\_type\_l1":"Modular Compressed Air Storage","technology\_type\_l2":"Compressed Air Storage","technology\_type\_l3":"Electro-mechanical","updated\_at":"2014-07-23T20:23:01Z","updated\_at\_by\_admin":"2014-07-23T20:23:01Z","updated\_by":null,"updated\_by\_email":null,"utility":"WEB Aruba N.V.","utility\_type":"","vendor\_company":"Hydrostor","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Paris","commissioning\_on":"2022-07-09","companion":"","construction\_on":"2022-06-15","contact\_city":"Paris","contact\_country":"France","contact\_email":"chris75sf@yahoo.com","contact\_info\_visible":true,"contact\_name":"Christophe HUBERT","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":3500.0,"cost\_OPEX":200.0,"country":"France","created\_at":"2013-10-25T09:28:32Z","created\_by\_id":147,"debt\_investor":"","decommissioning\_on":null,"desc":"Residential Energy Storage System\r\nLocal Storage of Solar or/and Wind\r\n5kWh of Capacity\r\nLiFePO4 Lithium-ion Batteries\r\nFully Automatic\r\nPeak Shaving\r\nCapacity Shifting\r\nForced Charge Mode to allow Charging at night rate (TOU) from the grid","developer":"Christophe HUBERT","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":720,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/720/DIY\_ESS\_Kit\_Open\_Closed.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/720/thumb\_DIY\_ESS\_Kit\_Open\_Closed.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/720/partner\_DIY\_ESS\_Kit\_Open\_Closed.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.856614,"longitude":2.3522219,"master\_project\_id":null,"name":"DIY ESS - 5kWh LiFePO4","om\_contractor":"","organization":null,"owner\_1":"Christophe HUBERT","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://diyesskit.blogspot.com","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Electric Supply Capacity","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Ile de France","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-16T23:29:29Z","updated\_at\_by\_admin":"2016-05-16T23:29:29Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Christophe HUBERT","zip":""}},{"project":{"announcement\_on":"2022-01-14","approval\_status":1,"city":"Clark County","commissioning\_on":null,"companion":"Potentially paired with PV and/or Wind","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"mshapiro@gridflexenergy.com","contact\_info\_visible":true,"contact\_name":"Matthew Shapiro","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-10-25T23:08:43Z","created\_by\_id":146,"debt\_investor":"","decommissioning\_on":null,"desc":"Closed-loop pumped storage project in early stage feasibility stage.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":724,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":36.0795613,"longitude":-115.094045,"master\_project\_id":null,"name":"Eldorado Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"Gridflex Energy, LLC Principals","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://gridflexenergy.com","primary\_reference1":null,"projected\_lifetime":"90.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1000000,"size\_kwh":10.3333333333333,"size\_kwh\_hours":10,"size\_kwh\_minutes":20.0,"state":"Nevada","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Closed-loop Pumped Hydro Storage","technology\_type\_l1":"Closed-loop Pumped Hydro Storage","technology\_type\_l2":"Closed-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-10-27T17:12:18Z","updated\_at\_by\_admin":"2014-10-27T17:12:18Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-10-25","approval\_status":2,"city":"Crook County","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"mshapiro@gridflexenergy.com","contact\_info\_visible":false,"contact\_name":"Matthew Shapiro","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-10-25T23:24:58Z","created\_by\_id":146,"debt\_investor":"","decommissioning\_on":null,"desc":"Pumped storage project in early feasibility stage, utilizing Prineville Reservoir as lower reservoir.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":726,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":44.0978126,"longitude":-120.0963654,"master\_project\_id":null,"name":"Prineville Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"Gridflex Energy, LLC Principals","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://gridflexenergy.com","primary\_reference1":null,"projected\_lifetime":"90.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":150000,"size\_kwh":8.2,"size\_kwh\_hours":8,"size\_kwh\_minutes":12.0,"state":"Oregon","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:43:34Z","updated\_at\_by\_admin":"2013-11-19T22:28:54Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"East Stroudsburg","commissioning\_on":"2022-10-01","companion":"","construction\_on":null,"contact\_city":"Providence","contact\_country":"United States","contact\_email":"gbaker@vcharge-energy.com","contact\_info\_visible":false,"contact\_name":"George Baker","contact\_phone":"(866) 607-0402","contact\_state":"RI","contact\_street\_address":"235 Promenade St, Suite 475","contact\_zip":"02908","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":154000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-10-27T12:02:43Z","created\_by\_id":149,"debt\_investor":"","decommissioning\_on":null,"desc":"VCharge, recognizing the energy storage potential of ETS, developed electronic controls for these heating systems that allow individual heaters or electric boilers to be switched on or off rapidly (within seconds) of the receipt of a control signal by VCharge’s Network Operations Center from the area’s grid operator, PJM Interconnect. The innovation started in the tidy development of Stones Throw in East Stroudsburg, where developers had installed identical ETS units in the 1980′s and ’90s, making it a perfect place to pilot VCharge’s technology. Now, over 40 Stones Throw homeowners, and nearly another 100 in the surrounding area, have installed free controls on their ETS heaters to participate in this radical experiment in grid storage and energy management–and to get a 25% discount on their home heating bills.\r\n\r\nBy itself, any individual heating system is relatively unremarkable. But together, the 134 homes in VCharge’s Aggregated Transactive Load Asset (ATLAS) create a huge resource for grid balancing–specifically providing ancillary services like fast frequency response through the markets run by PJM. This reservoir of capacity, both to cut load on the system (effectively generating negawatts) and to absorb rapid influxes of energy (for example from a sudden surge from a solar or wind farm) means that grid operators have a powerful new tool in their belts to deal with the coming demands of a shifting energy mix.","developer":"VCharge, Inc.","electronics\_provider":"VCharge, Inc.","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":727,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/727/vcharge.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/727/thumb\_vcharge.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/727/partner\_vcharge.png"}},"integrator\_company":"VCharge, Inc.","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.9995386,"longitude":-75.1812913,"master\_project\_id":null,"name":"Pennsylvania ATLAS (Aggregated Transactive Load Asset)","om\_contractor":"VCharge, Inc.","organization":"","owner\_1":"VCharge, Inc.","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"10 MWh; $75/kW, $15/kWh","primary\_reference":"http://vcharge-energy.com/projects/","primary\_reference1":"","projected\_lifetime":"30.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Grid-Connected Residential (Reliability)","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2010,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Pennsylvania","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Heat Thermal Storage","technology\_type\_l1":"Heat Thermal Storage","technology\_type\_l2":"Heat Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-11-29T21:12:45Z","updated\_at\_by\_admin":"2014-07-16T19:22:32Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"PPL","utility\_type":"","vendor\_company":"VCharge, Inc.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Concord","commissioning\_on":"2022-09-01","companion":"","construction\_on":null,"contact\_city":"Providence","contact\_country":"United States","contact\_email":"gbaker@vcharge-energy.com","contact\_info\_visible":true,"contact\_name":"George Baker","contact\_phone":"(866) 607-0402","contact\_state":"RI","contact\_street\_address":"235 Promenade St, Suite 475","contact\_zip":"02908","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-10-27T15:49:56Z","created\_by\_id":149,"debt\_investor":"","decommissioning\_on":null,"desc":"Pilot distributed thermal storage project providing frequency regulation and load-shifting in ISO New England.","developer":"VCharge, Inc.","electronics\_provider":"VCharge, Inc.","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":" - http://www.concordma.gov/pages/ConcordMA\_LightPlant/ets","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":728,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/728/vcharge.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/728/thumb\_vcharge.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/728/partner\_vcharge.png"}},"integrator\_company":"VCharge, Inc.","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.4603719,"longitude":-71.3489484,"master\_project\_id":null,"name":"Concord Pilot - VCharge, Inc.","om\_contractor":"VCharge, Inc.","organization":"VCharge, Inc.","owner\_1":"Concord Light","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"175 kW, 0.8 MWh","primary\_reference":"http://vcharge-energy.com/results/","primary\_reference1":"","projected\_lifetime":"30.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Grid-Connected Residential (Reliability)","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":175,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Heat Thermal Storage","technology\_type\_l1":"Heat Thermal Storage","technology\_type\_l2":"Heat Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-06T06:51:41Z","updated\_at\_by\_admin":"2014-07-21T15:27:20Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Concord Light","utility\_type":"Public Owned","vendor\_company":"VCharge, Inc.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Portland","commissioning\_on":"2022-10-10","companion":"","construction\_on":null,"contact\_city":"Providence","contact\_country":"United States","contact\_email":"gbaker@vcharge-energy.com","contact\_info\_visible":true,"contact\_name":"George Baker","contact\_phone":"(866) 607-0402","contact\_state":"RI","contact\_street\_address":"235 Promenade St, Suite 475","contact\_zip":"02908","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-10-27T15:57:40Z","created\_by\_id":149,"debt\_investor":"","decommissioning\_on":null,"desc":"Distributed/Aggregated transactive load asset comprised on electric thermal storage heating in Maine residences.","developer":"VCharge, Inc.","electronics\_provider":"VCharge, Inc.","energy\_management\_software\_provider":"","funding\_amount\_1":4500.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Investor funded - http://www.cmpco.com/ETS/default.html","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":729,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/729/vcharge.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/729/thumb\_vcharge.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/729/partner\_vcharge.png"}},"integrator\_company":"VCharge, Inc.","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":43.661471,"longitude":-70.2553259,"master\_project\_id":null,"name":"Portland Maine ATLAS (Aggregated Transactive Load Asset) - VCharge, Inc.","om\_contractor":"VCharge, Inc.","organization":"VCharge, Inc.","owner\_1":"VCharge, Inc.","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":" ~32kW/home; 150kWh storage/home","primary\_reference":"http://goodcleanheat.com/service/#maine","primary\_reference1":"","projected\_lifetime":"30.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Grid-Connected Residential (Reliability)","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":300,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Maine","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Heat Thermal Storage","technology\_type\_l1":"Heat Thermal Storage","technology\_type\_l2":"Heat Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-01-08T04:12:18Z","updated\_at\_by\_admin":"2014-07-16T19:27:10Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Central Maine Power","utility\_type":"Investor Owned","vendor\_company":"VCharge, Inc.","zip":""}},{"project":{"announcement\_on":"2022-05-24","approval\_status":1,"city":"Brisbane","commissioning\_on":null,"companion":"339 kW PV","construction\_on":"2022-07-01","contact\_city":"","contact\_country":"","contact\_email":"c.froome@uq.edu.au","contact\_info\_visible":true,"contact\_name":"Craig Froome","contact\_phone":"+61 7 3365 3689","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2013-10-29T00:51:56Z","created\_by\_id":21,"debt\_investor":"","decommissioning\_on":null,"desc":"RedFlow's M120 building-integrated energy storage system (BIES) has been operational since September 2013. The M120 is rated at 120kW / 288kWh and houses 36 of RedFlow's ZBMs in the basement of the University of Queensland's new Global Change Institute building, which is designed as a 6-star GreenStar rating. The M120 BIES is connected to the building's load and 140kW-peak roof-top solar panels. 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An identical 339kW adjacent group of panels will feed their power directly into the grid as the power is generated. A comparison between the two sections will provide valuable data on how solar PV power with storage can assist the network.","research\_institution":"University of Queensland","research\_institution\_link":"http://www.gci.uq.edu.au/","service\_use\_case\_1":"Load Following (Tertiary Balancing)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":120,"size\_kwh":2.4,"size\_kwh\_hours":2,"size\_kwh\_minutes":24.0,"state":"Queensland","status":"Operational","street\_address":"St Lucia, University of Queensland","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-17T20:22:53Z","updated\_at\_by\_admin":"2014-11-07T19:17:47Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-10-29","approval\_status":0,"city":"Maria Elena","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":3290000000.0,"cost\_OPEX":null,"country":"Chile","created\_at":"2013-10-29T05:08:27Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In separate acts, Chile's environmental evaluation service SEA and public lands authority Seremi of northern region II advanced solar power development of the Atacama desert.\r\n\r\nSEA approved the environmental impact assessment (EIA) of the María Elena 400MW concentrated solar power (CSP) project. The project includes the phased construction of four 100MW receptor towers over a five-year period for an estimated total cost of US $3.29bn, Chile's energy ministry said in a press release.\r\n\r\nMaría Elena will be built on 2,897ha and will have a 35-year life expectancy. \"This is the second CSP plant approved in the [northern power grid] SING as well as the second in Chile,\" Antofagasta regional governor Pablo Toloza said.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":738,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-22.345005,"longitude":-69.660706,"master\_project\_id":null,"name":"Ibereolica María Elena CSP 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The LL-W is a specially developed Valve Regulated Lead Acid (VRLA) battery to be used at Partial State of Charge (PSOC) suited for stabilizing the output fluctuation from the wind generation, and with an expected lifetime of 17 years. As lead acid batteries are a cost efficient technology, especially combined with the long life of the LL-W which requires no major additional costs, such as replacements, the system contributes to the cost reduction of the overall project.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":748,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/748/E-5-3-2\_photo\_01.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/748/thumb\_E-5-3-2\_photo\_01.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/748/partner\_E-5-3-2\_photo\_01.jpg"}},"integrator\_company":"Hitachi Power Solutions Co.","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.0146158,"longitude":139.9073521,"master\_project\_id":null,"name":"Yuza Wind Farm Battery","om\_contractor":"","organization":"","owner\_1":"Shonai Wind Power Generation Co.","owner\_2":"","owner\_type":"3","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.tokyo-gas.co.jp/Press\_e/20110421-01e.pdf","primary\_reference1":"","projected\_lifetime":"17.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":4500,"size\_kwh":2.33333333333333,"size\_kwh\_hours":2,"size\_kwh\_minutes":20.0,"state":"Yamagata","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Valve Regulated Lead-acid Battery","technology\_type\_l1":"Valve Regulated Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-22T23:45:35Z","updated\_at\_by\_admin":"2015-10-26T17:55:13Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"Shin-Kobe Electric Machinery Co.","zip":""}},{"project":{"announcement\_on":"2022-10-03","approval\_status":1,"city":"Rutland","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Colchester","contact\_country":"United States","contact\_email":"Mary.Marzec@greenmountainpower.com","contact\_info\_visible":false,"contact\_name":"Mary Marzec","contact\_phone":"N/A","contact\_state":"Vermont","contact\_street\_address":"163 Acorn Lane","contact\_zip":"05446","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-11-01T05:32:08Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Vermont's largest electric utility is launching a potential power-saving experiment that would use ice created at night when energy is cheap to cool buildings during the day, potentially saving money on air conditioning.\r\n\r\nGreen Mountain Power is installing three energy storage systems, called Ice Bears, in two building in downtown Rutland.\r\n\r\n\"We hope to put the freeze on high-cost, high-carbon generation driven by air conditioning,\" said GMP President Mary Powell. \"Through the pilot, we hope to demonstrate the ability to shift air conditioning energy demands from daytime to nighttime, saving customers money, reducing the environmental impact of generation, and controlling peak demand during the summer.\"\r\n\r\nThe system attaches to a building's existing rooftop air-conditioning system. During the day when it's hot, the system uses the ice, rather than the air conditioning unit's compressor, to cool the hot refrigerant, slowly melting the ice and cooling the building.\r\n\r\nThe units will serve the Citizens Bank and Gryphon buildings, both considered historic Rutland structures.\r\n\r\nThe project is being managed by GMP's Energy Innovation Center, which is leading the company's efforts to make Rutland the Solar Capital of New England by developing a variety of innovative pilot programs.","developer":"Green Mountain Power Energy Innovation Center","electronics\_provider":"N/A","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":749,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/749/Ice\_Energy\_Ice\_Bear.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/749/thumb\_Ice\_Energy\_Ice\_Bear.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/749/partner\_Ice\_Energy\_Ice\_Bear.jpg"}},"integrator\_company":"Ice Energy","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":43.6076674,"longitude":-72.9803603,"master\_project\_id":null,"name":"Citizens Bank Ice Energy Project 1 - Green Mountain Power Energy Innovation Center","om\_contractor":"Ice Energy","organization":"Green Mountain Power","owner\_1":"Green Mountain Power","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.ice-energy.com/green-mountain-power-begins-ice-storage-pilot-project-rutland-vt/","primary\_reference1":"http://www.reformer.com/stories/vermonts-largest-utility-launches-ice-storage-experiment,371606","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":45,"size\_kwh":4.66666666666667,"size\_kwh\_hours":4,"size\_kwh\_minutes":40.0,"state":"Vermont","status":"Operational","street\_address":"56 Merchants Row","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-10T21:44:21Z","updated\_at\_by\_admin":"2014-10-31T19:11:06Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Green Mountain Power","utility\_type":"","vendor\_company":"Ice Energy","zip":"05701"}},{"project":{"announcement\_on":"2022-08-01","approval\_status":1,"city":"Saint Petersburg","commissioning\_on":"2022-10-01","companion":"Gas Turbine","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"n.astahova@enerz.ru","contact\_info\_visible":false,"contact\_name":"Natalia Astakhova","contact\_phone":"+7 (812) 332 11 30 (3106)","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"ABB","contractor\_2":"Rockwell Automation","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Russia","created\_at":"2013-11-03T01:02:34Z","created\_by\_id":86,"debt\_investor":"","decommissioning\_on":null,"desc":"Multi-Functional Grid Energy Storage System (GRESS) installed on a substation in parallel with a gas turbine to provide peak shaving,load leveling and frequency support. \r\n\r\nEnerDel supplied the 2.5 MWh lithium ion unit which utilizes a Parker Hannifin Power Conversion System (PCS). \r\n\r\nAn identical unit was installed to support Sochi during the 2014 Olympics: www.energystorageexchange.org/projects/1558 ","developer":"","electronics\_provider":"Parker Hannifin","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":750,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/750/enerdel.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/750/thumb\_enerdel.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/750/partner\_enerdel.png"}},"integrator\_company":"EnerZ","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":59.9342802,"longitude":30.3350986,"master\_project\_id":null,"name":"EnerDel GRESS - 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Construction will begin in 2013 in Staßfurt, a city in Sachsen-Anhalt, Germany (ADELE stands for the German acronym for adiabatic compressed air energy storage for electricity supply). The project is a joint effort between RWE, General Electric, Zueblin, and the German Aerospace Center. The German Federal Ministry of Economics is also providing state funding. Altogether, the project members will contribute an amount of EUR 10 million. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":752,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.8608995,"longitude":11.5790389,"master\_project\_id":null,"name":"Adele CAES Project","om\_contractor":"","organization":"German Aerospace Center (DLR)","owner\_1":"RWE, GE, Zueblin, German Aerospace Center","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.neuralenergy.info/2009/06/caes.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200000,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Sachsen-Anhalt","status":"Announced/Never Built","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"In-ground Iso-thermal Compressed Air","technology\_type\_l1":"In-ground Compressed Air Storage","technology\_type\_l2":"Compressed Air Storage","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-10-25T01:27:37Z","updated\_at\_by\_admin":"2017-10-24T00:03:21Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-11-05","approval\_status":0,"city":"San Sebastián","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-11-05T17:35:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project aims to foster the integration of various renewable energy technologies in order to save energy, reduce costs and increase reliability, and in the process open the door to a smart power grid in the region of Gipuzkoa.\r\n\r\nIn its first stage, the i-Sare micro-grid will serve as a test bench for developing and experimenting with different technologies that will become the future of power grids worldwide.\r\n\r\nThe project's other aims are to become a reference for new generations in terms of operating this kind of system and increasing awareness about power. At the same time, it will become a laboratory for testing and certifying solutions that are developed by companies in the sector, leading to the creation of new products that will create jobs with high added value in our region.\r\n\r\nhttp://www.icrepq.com/icrepq'13/437-arrizubieta.pdf","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":753,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":43.3019507,"longitude":-1.9524972,"master\_project\_id":null,"name":"Micro-Grid I-Sare (Flywheel)","om\_contractor":"","organization":null,"owner\_1":"Provincial Council of Gipuzkoa","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.icrepq.com/icrepq'13/437-arrizubieta.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Gipuzkoa","status":"Operational","street\_address":"Polígono 27","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2014-05-21T07:11:16Z","updated\_at\_by\_admin":"2013-11-28T19:04:51Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-11-05","approval\_status":0,"city":"San Sebastián","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-11-05T17:40:18Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project aims to foster the integration of various renewable energy technologies in order to save energy, reduce costs and increase reliability, and in the process open the door to a smart power grid in the region of Gipuzkoa.\r\n\r\nIn its first stage, the i-Sare micro-grid will serve as a test bench for developing and experimenting with different technologies that will become the future of power grids worldwide.\r\n\r\nThe project's other aims are to become a reference for new generations in terms of operating this kind of system and increasing awareness about power. At the same time, it will become a laboratory for testing and certifying solutions that are developed by companies in the sector, leading to the creation of new products that will create jobs with high added value in our region.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":754,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":43.318334,"longitude":-1.9812313,"master\_project\_id":null,"name":"Micro-Grid I-Sare (Battery)","om\_contractor":"","organization":null,"owner\_1":"Provincial Council of Gipuzkoa","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.icrepq.com/icrepq'13/437-arrizubieta.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Gipuzkoa","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-04-18T17:56:38Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Coral Bay","commissioning\_on":"2022-01-01","companion":"Wind / Diesel","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"Australia","contact\_email":"yasemin.aksoy@au.abb.com; elinor.johnson@au.abb.com","contact\_info\_visible":false,"contact\_name":"Yasemin Aksoy; Elinor Johnson","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2013-11-05T23:06:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Coral Bay is the gateway to the Ningaloo Reef World Heritage Area in Northwestern Australia, where power demand increases significantly during the tourist season. A PowerStore grid-stabilizing system and DCS power management solution oversees the town’s power supply, which consists of seven 320 kilowatt (kW) low-load diesel generation units combined with three 200 kW wind turbines. PowerStore’s 500 kW flywheel technology enables the wind turbines to supply up to 95 percent of Coral Bay’s energy supply at times, with a total annual wind penetration of 45 percent, while maintaining city grid standards of power stability and quality. Power station data indicates more than 80 percent of Coral Bay’s power is wind generated for one-third of the year. The data also shows that for nearly 900 hours per year, wind provides more than 90 percent of Coral Bay’s power supply. PowerStore maximizes an environmentally friendly solution. \r\n\r\nThe PowerStore is a compact and versatile flywheel-based grid stabilizing generator. Its main purpose is to stabilize power systems against fluctuations in frequency and voltage. It includes state-of-the-art inverters and virtual generator control software. It enables the integration of intermittent and often erratic renewable generation and the higher utilization of renewable energy generators, protecting remote communities from exposure to volatile oil prices. \r\n\r\nPowerStore safeguards conventional microgrids, and ensures the safe integration of large amounts of wind and solar energy, reducing emissions and dependency on fossil fuels. High-speed software controls the power flow into and out of the flywheel, essentially making it a high inertia electrical shock absorber that can instantly smooth out power fluctuations generated by wind turbines or solar arrays. \r\n\r\nPowerStore acts like a STATCOM (advanced grid technology that quickly stabilizes voltage and improves power quality) and in addition is capable of rapidly absorbing or injecting real power within an isolated power network. It can stabilize both voltage and frequency, hold 18 MWs (megawatt seconds) of energy and shift from full absorption to full injection in 1 millisecond to stabilize the grid.","developer":"","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":756,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/756/756\_coral\_bay.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/756/thumb\_756\_coral\_bay.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/756/partner\_756\_coral\_bay.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-23.1410266,"longitude":113.7764051,"master\_project\_id":null,"name":"Coral Bay PowerStore Flywheel Project","om\_contractor":"","organization":"ABB","owner\_1":"Verve Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://new.abb.com/power-generation/references/providing-coral-bay-with-high-quality-power","primary\_reference1":"https://library.e.abb.com/public/5ead225120394decaaf7ede6407e922a/1KHA001315SEN1000\_Microgrid%20reference%20list%20by%20year\_08072015.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":0.01,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.6,"state":"Western Australia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-12-31T06:09:02Z","updated\_at\_by\_admin":"2016-05-10T17:14:11Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"ABB","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Marble Bar","commissioning\_on":"2022-01-01","companion":"Solar / Diesel","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"Australia","contact\_email":"yasemin.aksoy@au.abb.com; elinor.johnson@au.abb.com","contact\_info\_visible":false,"contact\_name":"Yasemin Aksoy; Elinor Johnson","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2013-11-05T23:24:09Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The world’s first high penetration, solar photovoltaic diesel power stations were commissioned in 2010 in the towns of Nullagine and Marble Bar, in Western Australia. The projects include more than 2,000 solar modules and a solar tracking system that follows the path of the sun throughout the day. When the sun is shining, PowerStore grid-stabilizing technology and DCS power management solution ensures maximum solar energy (100% peak penetration) goes into the network by lowering diesel generation, up to the minimum loading of the generation units. When the sun is obscured, the PowerStore covers the loss of solar power generation as the DCS ramps up the diesel generation, so the network has an uninterrupted energy supply. The solar energy systems generate over 1 gigawatt hour (GWh) of renewable energy per year, supplying 60 percent of the average daytime energy for both towns, saving 405,000 liters of fuel and 1,100 metric tons of greenhouse gas emissions each year. \r\n\r\nThe PowerStore is a compact and versatile flywheel-based grid stabilizing generator. Its main purpose is to stabilize power systems against fluctuations in frequency and voltage. It includes state-of-the-art inverters and virtual generator control software. It enables the integration of intermittent and often erratic renewable generation and the higher utilization of renewable energy generators, protecting remote communities from exposure to volatile oil prices. \r\n\r\nPowerStore safeguards conventional microgrids, and ensures the safe integration of large amounts of wind and solar energy, reducing emissions and dependency on fossil fuels. High-speed software controls the power flow into and out of the flywheel, essentially making it a high inertia electrical shock absorber that can instantly smooth out power fluctuations generated by wind turbines or solar arrays. \r\n\r\nPowerStore acts like a STATCOM (advanced grid technology that quickly stabilizes voltage and improves power quality) and in addition is capable of rapidly absorbing or injecting real power within an isolated power network. It can stabilize both voltage and frequency, hold 18 MWs (megawatt seconds) of energy and shift from full absorption to full injection in 1 millisecond to stabilize the grid.","developer":"","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":757,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/757/757\_Marble\_Bar\_Microgrids\_HR.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/757/thumb\_757\_Marble\_Bar\_Microgrids\_HR.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/757/partner\_757\_Marble\_Bar\_Microgrids\_HR.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-21.16493,"longitude":119.741631,"master\_project\_id":null,"name":"Marble Bar PowerStore Flywheel Project","om\_contractor":"","organization":"ABB","owner\_1":"Horizon Power","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.abb.com/cawp/seitp202/38567a1472ea578fc1257e8a0030a70d.aspx","primary\_reference1":"https://library.e.abb.com/public/5ead225120394decaaf7ede6407e922a/1KHA001315SEN1000\_Microgrid%20reference%20list%20by%20year\_08072015.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":0.01,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.6,"state":"Western Australia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-12-31T06:03:47Z","updated\_at\_by\_admin":"2016-05-10T17:15:55Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Horizon Power","utility\_type":"State/Municipal Owned","vendor\_company":"ABB","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Ross","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"meridian1@custhelp.com","contact\_info\_visible":false,"contact\_name":"Pamela den Boestert","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Antarctica","created\_at":"2013-11-05T23:33:42Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"New Zealand’s Scott Base and America’s McMurdo Station in Antarctica are important research bases and home to about 1,200 people in the Antarctic summer. They have always relied completely on fossil fuels for power and heating, until a new system based on wind turbines, a new distributed control system and PowerStore grid-stabilizing technology was commissioned in 2009. The bases still need back-up diesel generators, but three 333 kilowatt (kW) wind turbines reduce the amount of diesel required for power generation by around 463,000 liters, and cut CO2 emissions by 1,242 metric tons per year, while lowering the risks of transporting and storing liquid fuel in this precious environment. A frequency converter interconnects the Scott and McMurdo bases, which operate at different frequencies - 50 Hz (NZ) and 60 Hz (US), allowing power flow in both directions.\r\n\r\nThe PowerStore is a compact and versatile flywheel-based grid stabilizing generator. Its main purpose is to stabilize power systems against fluctuations in frequency and voltage. It includes state-of-the-art inverters and virtual generator control software. It enables the integration of intermittent and often erratic renewable generation and the higher utilization of renewable energy generators, protecting remote communities from exposure to volatile oil prices.\r\n\r\nPowerStore safeguards conventional microgrids, and ensures the safe integration of large amounts of wind and solar energy, reducing emissions and dependency on fossil fuels. High-speed software controls the power flow into and out of the flywheel, essentially making it a high inertia electrical shock absorber that can instantly smooth out power fluctuations generated by wind turbines or solar arrays.\r\n\r\nPowerStore acts like a STATCOM (advanced grid technology that quickly stabilizes voltage and improves power quality) and in addition is capable of rapidly absorbing or injecting real power within an isolated power network. It can stabilize both voltage and frequency, hold 18 MWs (megawatt seconds) of energy and shift from full absorption to full injection in 1 millisecond to stabilize the grid.","developer":"Meridian Energy","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":758,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/758/Capture.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/758/thumb\_Capture.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/758/partner\_Capture.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-77.5247401,"longitude":166.9603134,"master\_project\_id":null,"name":"Antarctica NZ ABB PowerStore Flywheel - Meridian Energy","om\_contractor":"","organization":"Meridian Energy Centre","owner\_1":"New Zealand Antarctic Institute","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://new.abb.com/power-generation/references/ross-island-research-station","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":0.00833333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.5,"state":"Ross Island","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-12-31T05:14:46Z","updated\_at\_by\_admin":"2016-07-29T22:26:00Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"ABB","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Leinster","commissioning\_on":null,"companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"Australia","contact\_email":"juergen.zimmermann@au.abb.com","contact\_info\_visible":false,"contact\_name":"Juergen Zimmerman","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2013-11-05T23:37:51Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"BHP Billiton’s Leinster nickel mine in Western Australia is the third-largest producer of nickel concentrate in the world. Ore is extracted from 1,000 meters underground with a large, electrically driven winder, which at 8.5 megawatts (MW) of demand shift over 120 seconds is a large cyclic load, given the unit’s average power consumption is just 2 MW. To upgrade the winder’s power supply, BHP installed a 1 MW PowerStore system, which reduced the total demand shift to 6.5 MW while adding 1 MW of spinning reserve to the system. Its flywheel-based energy storage system provides peak lopping and overcomes transient and cyclic loads on grid connected or isolated systems. The mine was able to increase winder production without affecting power system reliability. Fully automated, PowerStore gets power to the winder when it’s needed most, and provides high resolution data of winder performance and local electrical grid disturbances.\r\n\r\nThe PowerStore is a compact and versatile flywheel-based grid stabilizing generator. Its main purpose is to stabilize power systems against fluctuations in frequency and voltage. It includes state-of-the-art inverters and virtual generator control software. It enables the integration of intermittent and often erratic renewable generation and the higher utilization of renewable energy generators, protecting remote communities from exposure to volatile oil prices.\r\n\r\nPowerStore safeguards conventional microgrids, and ensures the safe integration of large amounts of wind and solar energy, reducing emissions and dependency on fossil fuels. High-speed software controls the power flow into and out of the flywheel, essentially making it a high inertia electrical shock absorber that can instantly smooth out power fluctuations generated by wind turbines or solar arrays.\r\n\r\nPowerStore acts like a STATCOM (advanced grid technology that quickly stabilizes voltage and improves power quality) and in addition is capable of rapidly absorbing or injecting real power within an isolated power network. It can stabilize both voltage and frequency, hold 18 MWs (megawatt seconds) of energy and shift from full absorption to full injection in 1 millisecond to stabilize the grid.\r\n","developer":"","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":759,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-27.9128383,"longitude":120.6973818,"master\_project\_id":null,"name":"Leinster Nickel Operation PowerStore Flywheel","om\_contractor":"","organization":"ABB","owner\_1":"BHP Billiton","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.ferret.com.au/c/PowerCorp/New-energy-storage-system-boosts-peak-power-to-Leinster-s-underground-winder-n689054","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.01,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.6,"state":"Western Australia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-12-13T04:25:03Z","updated\_at\_by\_admin":"2014-08-08T16:37:27Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"ABB","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Flores","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"william.galton@us.abb.com","contact\_info\_visible":false,"contact\_name":"William Galton ","contact\_phone":"1-919-855-2937","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Portugal","created\_at":"2013-11-05T23:43:57Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The PowerStore is a compact and versatile flywheel-based grid stabilizing generator. Its main purpose is to stabilize power systems against fluctuations in frequency and voltage. It includes state-of-the-art inverters and virtual generator control software. It enables the integration of intermittent and often erratic renewable generation and the higher utilization of renewable energy generators, protecting remote communities from exposure to volatile oil prices.\r\n\r\nPowerStore safeguards conventional microgrids, and ensures the safe integration of large amounts of wind and solar energy, reducing emissions and dependency on fossil fuels. 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It can stabilize both voltage and frequency, hold 18 MWs (megawatt seconds) of energy and shift from full absorption to full injection in 1 millisecond to stabilize the grid.\r\n\r\n","developer":"","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":760,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.4474713,"longitude":-31.193945,"master\_project\_id":null,"name":"Flores (the Azores) PowerStore Flywheel Project","om\_contractor":"","organization":"ABB","owner\_1":"Electricidade dos Açores (EDA)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://library.e.abb.com/public/5ead225120394decaaf7ede6407e922a/1KHA001315SEN1000\_Microgrid%20reference%20list%20by%20year\_08072015.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":0.01,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.6,"state":"The Azores","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-12-31T01:17:16Z","updated\_at\_by\_admin":"2014-07-15T15:44:55Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Electricidade dos Açores (EDA)","utility\_type":"Investor Owned","vendor\_company":"ABB","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Graciosa","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"william.galton@us.abb.com","contact\_info\_visible":false,"contact\_name":"William Galton ","contact\_phone":"1-919-855-2937","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Portugal","created\_at":"2013-11-05T23:51:07Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The PowerStore is a compact and versatile flywheel-based grid stabilizing generator. Its main purpose is to stabilize power systems against fluctuations in frequency and voltage. It includes state-of-the-art inverters and virtual generator control software. It enables the integration of intermittent and often erratic renewable generation and the higher utilization of renewable energy generators, protecting remote communities from exposure to volatile oil prices.\r\n\r\nPowerStore safeguards conventional microgrids, and ensures the safe integration of large amounts of wind and solar energy, reducing emissions and dependency on fossil fuels. 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It can stabilize both voltage and frequency, hold 18 MWs (megawatt seconds) of energy and shift from full absorption to full injection in 1 millisecond to stabilize the grid.\r\n","developer":"","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":761,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.0524827,"longitude":-28.0068979,"master\_project\_id":null,"name":"Graciosa (the Azores) PowerStore Flywheel Project","om\_contractor":"","organization":"ABB","owner\_1":"Electricidade dos Açores (EDA)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://library.e.abb.com/public/5ead225120394decaaf7ede6407e922a/1KHA001315SEN1000\_Microgrid%20reference%20list%20by%20year\_08072015.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":0.01,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.6,"state":"The Azores","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-12-31T01:16:39Z","updated\_at\_by\_admin":"2014-07-15T15:45:13Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Electricidade dos Açores (EDA)","utility\_type":"Investor Owned","vendor\_company":"ABB","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Tias","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"United States","contact\_email":"william.galton@us.abb.com","contact\_info\_visible":false,"contact\_name":"William Galton ","contact\_phone":"1-919-855-2937","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-11-06T00:00:32Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This facility, which has a budget of 1.2 million euros, will be located next to the 66 kilovolt (kV) Mácher substation, in the municipality of Tías in Lanzarote.\r\n\r\nThe flywheel can inject into or absorb from the grid a maximum power of 1.65 MW for about 12 seconds, providing a total of about 18 megawatts per second (MWs) of energy, depending on the programming of the equipment. This will also help mitigate the effects of sudden changes in system frequency within pre-established parameters, giving it stability, something that is very important in isolated systems.\r\n","developer":"","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":2065199.73,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Red Eléctrica de España (REE) ","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":762,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":28.953154,"longitude":-13.651196,"master\_project\_id":null,"name":"Lanzarote PowerStore Flywheel Project ","om\_contractor":"","organization":"","owner\_1":"Red Eléctrica de España (REE) ","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.ree.es/en/press-office/press-release/2014/10/red-electrica-puts-service-flywheel-lanzarote-frequency-and-voltage-stabilisation","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1600,"size\_kwh":0.0045,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.27,"state":"Lanzarote","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-12-01T00:12:26Z","updated\_at\_by\_admin":"2013-11-28T19:13:21Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Red Eléctrica de España","utility\_type":"","vendor\_company":"ABB","zip":""}},{"project":{"announcement\_on":"2022-03-31","approval\_status":1,"city":"Playa Santiago, La Gomera","commissioning\_on":"2021-12-16","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"pablo.fontela@endesa.es","contact\_info\_visible":false,"contact\_name":"Pablo Fontela","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-11-06T00:23:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Endesa'a STORE project aims to demonstrate the technical and financial viability of large-scale storage systems to improve the reliability and operation of the grid in weak and isolated island networks. It explores operational possibilities for the arbitrage of power, voltage regulation, load leveling and peak shaving, and frequency regulation. \r\n\r\nProject STORE has three demonstration plants in the Canary Islands:\r\n\r\n• Lithium-ion battery system, with total installed capacity of 1MW/3MWh\r\n\r\n• A flywheel with total installed capacity of 0.5MW/18MWs\r\n\r\nThis project's key goal is to increase the inertia of the insular electricity system and regulate the frequency, thereby increasing the quality of supply and the integration of renewable energy, validating the technical feasibility and efficiency of the technology.\r\n\r\n• Ultracapacitors with total installed capacity of 4MW/20MWs\r\n\r\nWith a budget of Euro 11 million, the project is partly financed by The Centre for Industrial Technological Development (CDTI) (a Business Public Entity, answering to the Ministry of Economy and Competitiveness) and the European Union. \r\n\r\nThis ABB Powerstore flywheel provides 0.5 MW/ 18 MWs of storage. It will provide inertia and active power for primary voltage regulation, as well as helping to continuously stabilize voltage on the island.\r\n\r\nhttps://www.engerati.com/article/flywheel-stabilization-spanish-microgrid","developer":"ABB","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Spanish Ministry of Economy and Competitiveness’ CDTI (Centre for the Development of Industrial Technology)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":764,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"ABB","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":28.0271769,"longitude":-17.2006914,"master\_project\_id":"---\n- '612'\n- '764'\n- '765'\n","name":"Endesa STORE: La Gomera Project","om\_contractor":"","organization":"Endesa","owner\_1":"Endesa","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.engerati.com/article/flywheel-stabilization-spanish-microgrid","primary\_reference1":"http://www.abb.com/cawp/seitp202/a0963aa2f4be00e0c1257d81003a903a.aspx","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":500,"size\_kwh":0.00833333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.5,"state":"Canary Islands","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-12-30T22:14:44Z","updated\_at\_by\_admin":"2014-10-29T23:42:47Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Endesa","utility\_type":"Investor Owned","vendor\_company":"ABB (formerly PowerCorp)","zip":""}},{"project":{"announcement\_on":"2022-01-30","approval\_status":1,"city":"La Aldea de San Nicolás, Gran Canaria","commissioning\_on":"2022-09-30","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"pablo.fontela@endesa.es","contact\_info\_visible":false,"contact\_name":"Pablo Fontela","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-11-06T00:34:28Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Endesa's Storage Technologies of Reliable Energy (STORE) project aims to demonstrate the technical and financial viability of large-scale storage systems to improve the reliability and operation of the grid in weak and isolated island networks. It explores operational possibilities for the arbitrage of power, voltage regulation, load leveling and peak shaving, and frequency regulation. \r\n\r\nProject STORE has three demonstration plants in the Canary Islands:\r\n\r\n• Lithium-ion battery system, with total installed capacity of 1 MW/3 MWh\r\n\r\nThis project's key goals include:\r\n- Creating a dispatchable peaking resource in the island grid\r\n- Integrating storage plant in a substation to achieve a peak- load reduction on a distribution feeder \r\n- Demonstrating that substation storage can simultaneously mitigate voltage-level fluctuations as well as enable load shifting\r\n- Generating, collecting, analyzing, and sharing data results and findings\r\n\r\n• A flywheel with total installed capacity of 0.5MW/18MWs\r\n\r\n• Ultra-Capacitors with total installed capacity of 4MW/20MWs\r\n\r\nWith a budget of Euro 11 million, the project is partly financed by The Centre for Industrial Technological Development (CDTI) (a Business Public Entity, answering to the Ministry of Economy and Competitiveness) and the European Union.\r\n\r\nSaft provided the 1 MW/3 MWh lithium-ion unit: http://goo.gl/dIFEft","developer":"Saft","electronics\_provider":"Ingeteam","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Spanish Ministry of Economy and Competitiveness’ CDTI (Centre for the Development of Industrial Technology)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":765,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Ingeteam","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":27.9822218,"longitude":-15.7793741,"master\_project\_id":null,"name":"Endesa STORE: Gran Canaria Project","om\_contractor":"","organization":"Endesa","owner\_1":"Endesa","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.metering.com/endesa-commissions-three-energy-storage-plants-in-canary-islands/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1000,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Canary Islands","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-13T02:53:51Z","updated\_at\_by\_admin":"2014-10-29T22:45:52Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Endesa","utility\_type":"Investor Owned","vendor\_company":"Saft","zip":""}},{"project":{"announcement\_on":"2022-11-07","approval\_status":1,"city":"Norfolk County","commissioning\_on":"2021-12-31","companion":"20 MW Wind Farm","construction\_on":null,"contact\_city":"Mississauga","contact\_country":"Canada","contact\_email":"aaron.lampe@temporalpower.com","contact\_info\_visible":false,"contact\_name":"Aaron Lampe","contact\_phone":"9055814474","contact\_state":"ONTARIO","contact\_street\_address":"3750A Laird Rd, Unit 2","contact\_zip":"L5L0A6","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2013-11-07T18:48:19Z","created\_by\_id":156,"debt\_investor":"","decommissioning\_on":null,"desc":"Temporal Power’s flywheel energy storage (FES) technology is currently being deployed by Hydro One Networks Inc. to provide renewable energy integration support in Ontario, Canada. This 10-flywheel 5MW installation will provide local power quality support, by balancing real and reactive power flows from a 20MW wind farm.\r\n","developer":"Temporal Power Ltd.","electronics\_provider":"Emerson Control Techniques","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":768,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/768/plant.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/768/thumb\_plant.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/768/partner\_plant.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":42.6114835,"longitude":-80.5979231,"master\_project\_id":null,"name":"Clear Creek Flywheel Wind Farm Project ","om\_contractor":"","organization":"","owner\_1":"Hydro One Networks Inc.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.sdtc.ca/sites/default/files/sdtc\_temporalpower\_english\_web.pdf","primary\_reference1":"https://www.appro.org/images/en/stories/content/ESS/Carver,\_Cam.pdf","projected\_lifetime":"30.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Distribution upgrade due to wind","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Ramping ","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":5000,"size\_kwh":0.1,"size\_kwh\_hours":0,"size\_kwh\_minutes":6.0,"state":"Ontario","status":"Operational","street\_address":"100 7th Concession ENR","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-11-22T21:26:27Z","updated\_at\_by\_admin":"2013-11-28T19:19:39Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"Public Owned","vendor\_company":"Temporal Power Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Harriston, Town of Minto","commissioning\_on":"2022-07-22","companion":"","construction\_on":"2022-11-18","contact\_city":"Toronto","contact\_country":"Canada","contact\_email":"amcisaac@nrstor.com","contact\_info\_visible":true,"contact\_name":"Alexander McIsaac","contact\_phone":"4169374499","contact\_state":"Mississauga ","contact\_street\_address":"181 Bay St. Suite 4700 ","contact\_zip":"M5J2T3 ","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2013-11-07T18:59:03Z","created\_by\_id":156,"debt\_investor":"","decommissioning\_on":null,"desc":"NRStor was selected by Ontario's Independent Electricity System Operator (IESO) through a selective RFP process to deliver 2 MW of frequency regulation services to the Ontario electricity grid. Temporal Power Ltd. is the flywheel manufacturer and will be supplying the 10-flywheel 2MW facility.","developer":"NRStor Inc.","electronics\_provider":"Emerson Control Techniques","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":769,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/769/Flywheel\_Lower.jpg.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/769/thumb\_Flywheel\_Lower.jpg.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/769/partner\_Flywheel\_Lower.jpg.jpg"}},"integrator\_company":"Temporal Power Ltd.","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":43.9180476,"longitude":-80.8841675,"master\_project\_id":null,"name":"NRStor Minto Flywheel Energy Storage Project","om\_contractor":"","organization":"","owner\_1":"NRStor Inc.","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://temporalpower.com/news/press-releases/minister-energy-nrstor-announce-first-grid-connected-energy-storage-facility-ontario/","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":2000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Ontario","status":"Operational","street\_address":"25 Hutchison St.","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-11-30T20:31:02Z","updated\_at\_by\_admin":"2014-07-23T13:35:06Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Westario","utility\_type":"","vendor\_company":"Temporal Power Ltd.","zip":"N0G1Z0"}},{"project":{"announcement\_on":"2022-11-01","approval\_status":1,"city":"Los Angeles","commissioning\_on":"2022-04-03","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"CastroF@metro.net","contact\_info\_visible":true,"contact\_name":"Frank Castro","contact\_phone":"(213) 922-3930","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-11-07T23:15:59Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The system will be a 6 MW wayside energy storage system (WESS) type installation when complete. The 1st phase is a 2 MW flywheel based energy storage system, consisting of 4 units (500 kW) each capable of producing 2.08 kWh of usable energy. \r\n\r\nThe goal is to reduce the transit authority's utility bill by absorbing regenerative braking energy and delivering it back when the train accelerates away from the station.\r\n\r\nA controller, independent of the WESS, will be utilized to command the WESS to charge and discharge as required.","developer":"VYCON","electronics\_provider":"VYCON","energy\_management\_software\_provider":"","funding\_amount\_1":4400000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Federal Transit Authority","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":770,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/770/Ansaldobreda\_A650.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/770/thumb\_Ansaldobreda\_A650.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/770/partner\_Ansaldobreda\_A650.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.05637,"longitude":-118.274883,"master\_project\_id":null,"name":"LA Metro Wayside Flywheel Energy Storage System","om\_contractor":"","organization":"","owner\_1":"Los Angeles County Metropolitan Transit Authority","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.vyconenergy.com/pages/subpages/pr/pr\_140403.htm","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transportation Services","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":2000,"size\_kwh":0.00416666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.25,"state":"California","status":"Operational","street\_address":"680 S Westlake Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-11-30T20:29:13Z","updated\_at\_by\_admin":"2014-07-29T22:55:58Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"VYCON","zip":"90057"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Stavropol Krai","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Russia","contact\_email":"AhmedzhanovTG@rushydro.ru","contact\_info\_visible":false,"contact\_name":"Timur Akhmedzhanov","contact\_phone":"7 (800) 333 8000 ext. 1607","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Russia","created\_at":"2013-11-12T16:30:10Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This is an open loop pumped hydro power station used by Rushydro for electricity time shift and increasing electric supply 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HPP-PSP","om\_contractor":"","organization":null,"owner\_1":"RusHydro","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Project annual generation:  162,000,000 kWh","primary\_reference":"http://www.rushydro.com","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time 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voltage. Currently the Enercon-made turbine is limited to 225 kW.\r\n\r\nGigha's three original Vestas V27 turbines, with a combined capacity of 675 kW, comprise one of Scotland's first community wind farms. The island is connected to the mainland via an 11 kV cable, one of the longest overhead lines in Scotland.\r\n","developer":"REDT","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy and Climate Change","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":774,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/774/gigharedt.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/774/thumb\_gigharedt.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/774/partner\_gigharedt.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":55.68459,"longitude":-5.7490938,"master\_project\_id":null,"name":"Gigha Wind Farm Battery Project","om\_contractor":"","organization":"","owner\_1":"Gigha Island Community (Multiple Owners)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.communityenergyscotland.org.uk/gigha-battery-project.asp","primary\_reference1":"http://www.windpowermonthly.com/article/1408604/flow-battery-shipped-scottish-island","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":16.8,"size\_kwh\_hours":16,"size\_kwh\_minutes":48.0,"state":"Scotland","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-19T22:00:57Z","updated\_at\_by\_admin":"2016-09-19T22:00:57Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"REDT","zip":""}},{"project":{"announcement\_on":"2022-04-04","approval\_status":2,"city":"Kruonis","commissioning\_on":"2021-12-19","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"Lithuania","contact\_email":"kristina.sadauskaite@le.lt","contact\_info\_visible":false,"contact\_name":"Kristina Sadauskaite","contact\_phone":"+370 683 96 083","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Lithuania","created\_at":"2013-11-12T22:27:06Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"A fifth hydro unit is being considered for construction in 2016 and commissioning in 2018. it would add another 250 MW capacity, bringing the total output to 1150 MW.\r\n\r\nKruonis Pumped storage hydroelectric plant is the only hydro power plant of such type in Baltic states. After commissioning of the fourth unit in 1998, installed capacity of the plant has reached 900MW. During periods of low demand, usually at night, Kruonis PSHP is operated in pump mode, and, using cheap surplus energy, raises water from lower reservoir to upper one. With fully filled upper reservoir the plant can generate 900 MW for about 12 hours. Automatically started, the plant can reach full capacity in less than 2 min. Rapid response to demand is very important in case of emergency in the power system.\r\n\r\nAnother important feature of the plant is frequency and voltage regulation capability. Operated in synchronous condenser mode with depressed water from draft tube each unit of the plant can change output of reactive power from –120 MVAr to +180 MVAr.\r\n\r\nTwo frequency converters, 16 MW capacity each, are used for smooth starting in pump mode.\r\n\r\nPump - turbine\r\n\r\nType - Francis, reversible\r\n\r\nDiameter of runner - 6,3 m \r\n\r\nMax. capacity in a turbine mode - 225 MW\r\n\r\nCapacity in a pump mode - 225 MW\r\n\r\nSpeed of rotation - 150 rpm \r\n\r\nDischarge in a turbine mode - 226 m3/s\r\n\r\nDischarge in a pump mode - 189 m3/s\r\n\r\nRated head - 103,5 m\r\n\r\nManufacturing plant - Sanct-Peterburg LMZ\r\n\r\nMotor - generator\r\n\r\nType - synchronous, vertical\r\n\r\nCapacity - 248 MVA\r\n\r\nVoltage - 15,75 kV \r\n\r\nWeight - 1120 t\r\n\r\nManufacturer - Kharkov ETM\r\n\r\nNote, the name of this project was Kaishador.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":775,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/775/Untitled.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/775/thumb\_Untitled.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/775/partner\_Untitled.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":54.797866,"longitude":24.248169,"master\_project\_id":null,"name":"Kruonis Hydro Pumped Storage & Extension Project","om\_contractor":"","organization":null,"owner\_1":"Lietuvos Energijos Gambya, AB","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.kruoniohae.lt/en","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Primary Distribution","size\_kw":900000,"size\_kwh":12.0,"size\_kwh\_hours":12,"size\_kwh\_minutes":0.0,"state":"Kaunas","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:43:14Z","updated\_at\_by\_admin":"2014-06-30T16:29:44Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Martigny","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"Switzerland","contact\_email":"andreas.meier@alpiq.com","contact\_info\_visible":false,"contact\_name":"Meier Andreas","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Switzerland","created\_at":"2013-11-12T22:39:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Nant de Drance SA is building a pumped storage power station in the Valais municipality of Finhaut. The facility will be situated in an underground cavern between the existing Emosson and Vieux Emosson reservoirs. The power station is designed to generate electricity at peak consumption times and to balance out the irregular and variable electricity generation from renewable energy sources. Work on excavating the underground machine cavern has been under way since mid-2012. The dimensions are impressive: 190 meters long, 52 meters high and 32 meters wide. The excavation should be completed in March 2014. The work to raise the height of the Vieux-Emosson dam was started in the spring of 2013. After completion of the construction work, which will take another two years through to the autumn of 2015, the dam will have gained 20 metres in height. The structural steelwork and the installation of the machines will be started in 2014. The commissioning of the power station will take place in stages from 2017.\r\n\r\nhttp://www.flickr.com/photos/alpiq/sets/72157630544029988/","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":776,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/776/banniere\_haut.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/776/thumb\_banniere\_haut.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/776/partner\_banniere\_haut.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.1025948,"longitude":7.0770551,"master\_project\_id":null,"name":"Nant de Drance Pumped Hydro Storage Power ","om\_contractor":"","organization":null,"owner\_1":"Alpiq","owner\_2":"SBB (36%), IWB (15%), FMV (10%)","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":39.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.nant-de-drance.ch/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply 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1,600 meters above sea level.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":777,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/777/ova\_spin.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/777/thumb\_ova\_spin.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/777/partner\_ova\_spin.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":46.7004826,"longitude":10.0949116,"master\_project\_id":null,"name":"Ova Spin Pumped Hydro Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Engadine Power Generation 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The powerful system takes the place of the former \"Project 95\", and was developed together with environmental organizations as an alternative to the earlier expansion options. The future pumped storage plant uses the Lago Bianco on the Bernina Pass and the Lake Poschiavo as storage. By a 18 km long pressure tunnel on the right side of the valley of the Poschiavo and a 2.5-kilometer-long pressure tunnel, the water reaches the main power station at Camp Martin on Poschiavo . The connection to the power grid via the existing international 380-kilovolt line. Repower has submitted the concession project in 2010. End of October, the population of the municipality Poschiavo has approved the concession contracts at the polls with 65% in favor. On 13 December 2010, where the municipal assembly of Pontresina Lagobianco clear green light for the project. If the concessions are approved by the State, then start the project approval process. The construction period is about six to seven years.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":778,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/778/bf963e14c0.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/778/thumb\_bf963e14c0.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/778/partner\_bf963e14c0.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.3265,"longitude":10.0567,"master\_project\_id":null,"name":"Lago Bianco Pumped Hydro Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Repower","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.lagobianco.repower.com/de/home/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":1000000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Grisons","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-10-27T17:14:23Z","updated\_at\_by\_admin":"2014-10-27T17:14:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-11-13","approval\_status":0,"city":"Ragn de Ferrera","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Switzerland","contact\_email":"http://www.bkw.ch/kontakt.html","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"+41 58 477 51 11 ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Switzerland","created\_at":"2013-11-13T06:55:17Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In the underground central Ferrera stored in the Valle di Lei reservoir water level of the uppermost slope through turbines and subsequently passed through the transfer tunnel Ferrera Sufers Sufers in the reservoir. The cavern is 143 m long, 29 m wide and - measured in the First - 24 m high. To the cavern include a 180 m long access tunnel, the underwater castle, a cable tunnel and several other studs for the inlet and outlet of the water and for ventilation. With a maximum gradient of 524 m can in three high-pressure Francis turbines, 45 m 3 / s are processed. Pelton turbines today are so large gap still common, the installation of Francis turbines, the construction of the center, a pioneering achievement. Due to the seasonal storage in the Valle di Lei, it is possible to move a large part of the production from summer to winter. For this, the water level will drop the top on the one hand retained in memory during the summer and on the other hand pumped water from the equalization tank or reservoir Ferrera Sufers. The three groups in the horizontal axis machines Pumpspeicherwerk Ferrera serve not only to generate electricity: The generators are also engines for storage pumps, which pump the jam in the equalization tank Ferrera water from the intermediate catchment area of the Valle di Lei. With two vertical-feed pumps in the basement, water can be pumped from the reservoir into the equalization tank Sufers Ferrera and to the memory pumps. Thus, it is possible to largely adapt production to consumption.\r\n\r\nhttp://physicshydropower.wikispaces.com/\"\r\n","developer":"","electronics\_provider":"ABB","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":779,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/779/510c6936d9.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/779/thumb\_510c6936d9.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/779/partner\_510c6936d9.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":46.5301934,"longitude":9.4535904,"master\_project\_id":null,"name":"Ferrera Pumped Hydro Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Kraftwerke Hinterrhein AG ","owner\_2":"BKW","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.khr.ch/anlagen/zentrale-ferrera.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":185000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Graubünden","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:42:48Z","updated\_at\_by\_admin":"2013-11-13T06:57:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Voith Hydro","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Stausee Mapragg","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Switzerland","contact\_email":"medien@axpo.com; ueli.walther@axpo.com ","contact\_info\_visible":false,"contact\_name":"Ueli Walther","contact\_phone":"+41 56 200 41 69 ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Switzerland","created\_at":"2013-11-13T07:05:22Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"With an installed capacity of 370 MW in turbine mode KSL produces about 490 million kilowatt-hours of electrical energy per year. The two power plant stages Mapragg and Sarelli use water inflows of approximately 160 km ² large catchment area in the white fir and Calfeisental and summarize this in the two reservoirs Gigerwald and Mapragg. During off-peak periods, the water can be pumped from the reservoir into the reservoir Mapragg Gigerwald and demand re-used for electricity production.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":780,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/780/swiss\_pumped\_storage.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/780/thumb\_swiss\_pumped\_storage.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/780/partner\_swiss\_pumped\_storage.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.9429623,"longitude":9.4798893,"master\_project\_id":null,"name":"Mapragg Pumped Hydro Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Axpo","owner\_2":"Government of St Gallen","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":98.5,"ownership\_percentage\_2":1.5,"performance":"490,000,000 kilowatt-hours of electrical energy per year","primary\_reference":"http://energystoragesense.com/wp-content/uploads/2015/03/PHES\_schemes\_energystoragesense1.txt","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":370000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Pfäfers","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-18T16:49:29Z","updated\_at\_by\_admin":"2016-05-18T16:49:29Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Linthal","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"Switzerland","contact\_email":"JBartell@strategen.com","contact\_info\_visible":false,"contact\_name":"J","contact\_phone":"4802484634","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-11-13T07:10:27Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"A new underground pumped storage power plant to pump water back from the Limmernsee to the Muttsee, 630 meters higher. The new plant will have a performance and a turbine output of 1000 MW each. Thus, the capacity of power plants Lintharena-Limmern increased (KLL) from currently 480 MW to 1480 MW. Construction is expected to take 5 years with commissioning in 2015/2016. The investment for this project is estimated at around 2.1 billion Swiss francs. The project required an early relicensing of KLL. Kraftwerke Linth-Limmern AG (KLL) is the owner of the plant and is a joint partnership between the Canton of Glarus and Axpo.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":781,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/781/download\_\_1\_.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/781/thumb\_download\_\_1\_.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/781/partner\_download\_\_1\_.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.9218287,"longitude":8.9996438,"master\_project\_id":null,"name":"Linthal 2015 (Linth-Limmern Expansion) Pumped Hydro Storage Power Plant","om\_contractor":"","organization":"Strategen Consulting","owner\_1":"Axpo","owner\_2":"Canton of Glarus","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":85.0,"ownership\_percentage\_2":15.0,"performance":"","primary\_reference":"http://www.axpo.com/axpo/ch/en/axpo-erleben/linthal-2015.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Glarus","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2018-02-27T02:27:15Z","updated\_at\_by\_admin":"2016-05-17T19:12:25Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-11-13","approval\_status":0,"city":"Tierfehd","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Switzerland","contact\_email":"medien@axpo.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Switzerland","created\_at":"2013-11-13T07:25:00Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Linth–Limmern Power Stations are a system of hydroelectric power stations located south of Linthal in the canton of Glarus, Switzerland. Using five reservoirs and three power stations at steep variations in altitude, the scheme currently has an installed capacity of 479.8 MW. Construction on the Limmern Dam and Linth–Limmern Power Stations began in 1957. The Limmern Dam was complete in 1963 and the power stations were all operational by 1968. By 2009, the 140 MW pumped-storage component between Lake Limmern and Tierfehd was commissioned. In 2010 construction began on the Linthal 2015 project, which is the addition of a 1,000 MW pumped-storage component between Lake Mutt and Lake Limmern. This also includes an expansion of Lake Mutt and the Tierfehd Balancing Reservoir.\r\n\r\nhttp://en.wikipedia.org/wiki/Linth%E2%80%93Limmern\_Power\_Stations\r\n\r\nhttp://www.renewableenergyworld.com/rea/news/article/2009/07/hydropower-in-europe-current-status-future-opportunities \r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":784,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":46.8784824,"longitude":8.9820654,"master\_project\_id":null,"name":"Tierfehd (Nestil) Pumped Hydro Storage 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pressure tunnel to the water castle. The headrace tunnel is divided after the surge pressure in two lines, each 2,200 meters length. Due to this, the engine water reaches the turbines in the old village center.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":785,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/785/1338796494932.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/785/thumb\_1338796494932.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/785/partner\_1338796494932.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":47.1369626,"longitude":8.7800626,"master\_project\_id":null,"name":"Etzelwerk Pumped Hydro Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"SBB CFF FFS","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.sbb.ch/sbb-konzern/sbb-als-geschaeftspartnerin/angebote-fuer-evus/energie/erzeugung/wasserkraftwerke/etzelwerk.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply 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min.equipped, it uses an average of 338 m Nutzgefälle. The water then flows into the overflow tank Robiei.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":786,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":46.3367938,"longitude":8.6092811,"master\_project\_id":null,"name":"Robiei Pumped Hydro Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Officine Idroelettriche della Maggia SA","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.ofima.ch/index.php?option=com\_content&task=view&id=49&Itemid=54","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply 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Built between 1972 and 1976. Water can be moved from Lake Räterichsboden to the Handeck reservoir or sent over to the Gadmen valley. Water can also come from the Gadmen valley and then pumped up to Lake Räterichsboden. The runner wheels here can be used as both pump and turbine.\r\n\r\nPower Plant Data:\r\nConstruction = 1972 - 1976\r\nPump-turbine group \"Isogyre\" (Francis wheels)\r\nTurbine operation\r\nInstalled turbine capacity in megawatt (MW) = 55 MW\r\nInflow = 14 m3/m\r\nHead = 450m\r\nDifference in altitude between Lake Räterichsboden, Lake Mattenalp and the Handeck reser-voir\r\nPump operation\r\nCapacity in megawatts (MW) = 46 MW\r\nInflow = 8.5 m3/m\r\nHead = 460 m\r\nDifference in altitude between the Trift intake and Lake Räterichsboden\r\nDiagonal pump (Francis wheels)\r\nCapacity in megawatts = 4.5 MW\r\nInflow = 7.5 m3/m\r\nHead =30 m\r\nDifference in altitude between the Handeck reservoir and the Trift intake\r\nEnergy in millions of kilowatt hours = 40","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":787,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.65532,"longitude":8.28872,"master\_project\_id":null,"name":"Handeck 3 Pumped Hydro Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"KWO Grimselstrom","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=13&ved=0CGsQFjAM&url=http%3A%2F%2Fwww.grimselstrom.ch%2Fhome%2Fdownload%2F763&ei=UJyCUpiKBMm8igLT14H4Dw&usg=AFQjCNETKpLht1ER1Z4sq9t0AA8oY16EEA&sig2=caGEpb8RBJdisflmBCzXkw&bvm=bv.56343320,d.cGE","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":55000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Bern","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-09-24T21:11:14Z","updated\_at\_by\_admin":"2014-09-24T21:11:14Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Guttannen","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"Switzerland","contact\_email":"bae@kwo.ch","contact\_info\_visible":false,"contact\_name":"Ernst Baumberger","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Switzerland","created\_at":"2013-11-13T20:18:55Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Built between 1973 and 1980. The four machine groups, each with a pump and turbine wheel on the same shaft, use the gradient between the Oberaar and Grimsel Lakes.\r\nWater is pumped, using surplus grid electricity, from the Grimsel 2 pump storage plant to a higher lying lake and stored to produce electricity at a later point.\r\n\r\nPower Plant Data:\r\nNumber and type of turbines = 4 Francis turbines\r\nEnergy in millions of kilowatt hours = 600\r\nInflow = 93 m3/s\r\nHead = 400m\r\nNumber and type of pumps = 4 (Francis wheels)\r\nMax pump capacity in MW = 363\r\nInflow = 80 m3/s\r\nHead = 400\r\n\r\nhttp://goo.gl/dmi5yT\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":788,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/788/Maschine2\_L2-508px.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/788/thumb\_Maschine2\_L2-508px.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/788/partner\_Maschine2\_L2-508px.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.65532,"longitude":8.28872,"master\_project\_id":null,"name":"Grimsel 2 Pumped Hydro Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"KWO 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Räterichsboden.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":789,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/789/SetWidth170-pumpspeicherwerkg3.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/789/thumb\_SetWidth170-pumpspeicherwerkg3.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/789/partner\_SetWidth170-pumpspeicherwerkg3.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.65532,"longitude":8.28872,"master\_project\_id":null,"name":"Grimsel 3 Pumped Hydro Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"KWO 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meters long. The water reservoir feeds the plants Mottec, Vissoie and Chippis (Navizence).\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":790,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/790/alp.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/790/thumb\_alp.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/790/partner\_alp.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.291289,"longitude":7.53548,"master\_project\_id":null,"name":"Gougra Pumped Hydro Storage Power 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A tunnel more than 20 kilometers in length was built to transport the water into the reservoir, from where it flows through an almost 8 kilometer long line before flowing through turbines to generate electricity. Veytaux power plant - alt 377 m \r\nPump-turbine power plant: during off-peak periods, water from Lake Geneva is discharged at a rate of 24 m3 per second to be turbined during periods of high demand.\r\n\r\n2 x 4 Pelton turbines and 4 pumps \r\nGross head: 878 m\r\n\r\nL'Hongrin dam - alt 1255 m \r\nReservoir capacity: 52 m m3 \r\nType: double arch \r\nHeight: 123 m / 95 m \r\nCrest: 600 m \r\nCatchment area: 90.8 km2 \r\nArea: 160 ha\"\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":791,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/791/Hongrin-Leman\_700x500\_tcm95-85496\_\_1\_.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/791/thumb\_Hongrin-Leman\_700x500\_tcm95-85496\_\_1\_.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/791/partner\_Hongrin-Leman\_700x500\_tcm95-85496\_\_1\_.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.4198999,"longitude":6.9287696,"master\_project\_id":null,"name":"Hongrin-Leman Pumped Hydro Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Alpiq","owner\_2":"Romande Energie (41%), Group E (13%), Ville de Lausanne (7%)","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":39.0,"ownership\_percentage\_2":null,"performance":"Annual Production: 328 GWh (2012)","primary\_reference":"http://www.alpiq.com/what-we-offer/our-assets/hydropower/storage-power-plants/forces-motrices-hongrin-lman.jsp","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":240000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Vaud","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-09-22T13:35:42Z","updated\_at\_by\_admin":"2014-09-22T13:35:42Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Martigny","commissioning\_on":"2022-06-01","companion":"","construction\_on":"2022-09-01","contact\_city":"","contact\_country":"Switzerland","contact\_email":"andreas.meier@alpiq.com","contact\_info\_visible":false,"contact\_name":"Meier Andreas","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Switzerland","created\_at":"2013-11-13T20:44:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Situated at an altitude of 1930 meters, the Emosson reservoir is partly fed by the waters of the Mont Blanc massif. Energy is generated in the Vallorcine and Martigny-La Bâtiaz stations located around 1,400 meters lower down. The water stored in the reservoir is sufficient to generate electricity to illuminate a city of 250,000 residents. http://www.emosson.ch/PublicEN/Presentation.htm\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":792,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/792/content\_95-58847-32\_emosson.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/792/thumb\_content\_95-58847-32\_emosson.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/792/partner\_content\_95-58847-32\_emosson.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.1025948,"longitude":7.0770551,"master\_project\_id":null,"name":"Emosson Pumped Hydro Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Alpiq","owner\_2":"EDF","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":50.0,"ownership\_percentage\_2":50.0,"performance":"Annual Production: 818 GWh (2012)","primary\_reference":"http://www.alpiq.com/what-we-offer/our-assets/hydropower/storage-power-plants/emosson-storage-power-plant.jsp","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":360000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Valais","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-09-22T13:27:26Z","updated\_at\_by\_admin":"2014-09-22T13:27:26Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Veytaux","commissioning\_on":"2022-12-01","companion":"","construction\_on":"2022-07-04","contact\_city":"","contact\_country":"Switzerland","contact\_email":"andreas.meier@alpiq.com","contact\_info\_visible":false,"contact\_name":"Andreas Meier","contact\_phone":"+41 62 286 76 43","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Switzerland","created\_at":"2013-11-13T20:48:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"With the FMHL+ project the capacity of the Veytaux pumped storage power station will be increased from 240 MW to 480 MW, 60 MW act as a reserve. To achieve this, two machine groups with 120 MW capacity each will be installed in a new cavern that is currently being excavated. The construction work has been in progress since 7 April 2011. After its commissioning, which is scheduled for the end of 2015, the pumped storage power station with one billion kWh of peak energy per year will generate virtually twice as much electricity as at present (520 million kWh). In order to achieve this, Forces Motrices Hongrin-Léman SA (FMHL), in which Alpiq holds a share of almost 40 percent, is investing 331 million Swiss francs. The pumped storage power station Veytaux will play a crucial role in supplying electricity to the French-speaking part of Switzerland. The project is the response to the increasing demand for balancing energy, which has been triggered by the rapid development of the new renewable energies that generate energy in an intermittent and fluctuating manner. Thanks to its high degree of flexibility, the Veytaux power station is able to quickly balance out such fluctuations. At peak times, the water from the Hongrin reservoir is channelled through the turbines of the Veytaux power station located 800 metres lower down, while during off-peak times, the excess energy is used to pump water from Lake Geneva up to the Hongrin reservoir. \r\n\r\nPlease note that the Hogrin-Leman is a separate plant.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":793,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/793/fmhl-plus-general-view700x500\_tcm95-85538.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/793/thumb\_fmhl-plus-general-view700x500\_tcm95-85538.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/793/partner\_fmhl-plus-general-view700x500\_tcm95-85538.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.4358779,"longitude":6.9104254,"master\_project\_id":null,"name":"Veytaux (FMHL+) Pumped Hydro Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Alpiq","owner\_2":"Romande Energie; Group E; Municipality of Lausanne","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":39.3,"ownership\_percentage\_2":41.0,"performance":"","primary\_reference":"http://www.alpiq.com/what-we-offer/our-assets/hydropower/storage-power-plants/forces-motrices-hongrin-lman-fmhl.jsp","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":240000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Montreux","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-06-26T22:02:51Z","updated\_at\_by\_admin":"2014-06-26T22:01:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Rancho Cordova","commissioning\_on":"2022-01-01","companion":"Residential Solar Panels","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"mrawson@smud.org","contact\_info\_visible":false,"contact\_name":"Mark Rawson","contact\_phone":"916-732-6364","contact\_state":"","contact\_street\_address":"Sacramento Municipal Utility ","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-11-21T23:31:30Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-09-01","desc":"Sacramento Municipal Utility District (SMUD) is piloting both residential energy storage (RES) units and community energy storage (CES) systems in Anatolia. So far, the research team has installed 15 RES units in the garages of neighborhood volunteers. Later this month, the team will set up three CES systems in the neighborhood. Each CES will be connected to the pad-mounted transformers on distribution feeders and will be sized to work with the group of homes serviced by each transformer. These are about three times larger than the residential units, but can be shared between five to ten homes.\r\n\r\nSMUD will continue to run tests and gather data through September 2012, giving the utility a nine-month experimental period with the RES units and roughly a six-month period for the CES units. Although complete results will not be available until the end of the year, the researchers will present preliminary data on March 19, 2012, at the PV America conference in San Jose, California.\r\n\r\nTechnical Details:\r\n15 units\r\n– UL listed Silent Power units\r\n– 10kWpeak/8.8 kWh SAFT Li-ion \r\nEnergy storage connected to the home electrical system through a Silent Power grid-connected inverter\r\nHigh-speed communication over broadband for rich data collection and advanced analytics\r\nCustomer portal access for each home, allowing customers to view: their household energy consumption , state of their battery, and energy supplied back to the grid, as well as receive and respond to dynamic pricing signal.\r\n\r\nNote: Funding designation is half designated to High Penetration Solar Pilot Project Anatolia (CES System)","developer":"","electronics\_provider":"Silent Power Inc.","energy\_management\_software\_provider":"","funding\_amount\_1":2150000.0,"funding\_amount\_2":830000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 - RD&D","funding\_source\_2":"State/Provincial/Regional RD&D","funding\_source\_3":"State/Provincial/Regional","funding\_source\_details\_1":"SunShot Initiative ","funding\_source\_details\_2":"Sacramento Municipal Utility District","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":794,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/794/photo\_res\_unit.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/794/thumb\_photo\_res\_unit.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/794/partner\_photo\_res\_unit.jpg"}},"integrator\_company":"Silent Power Inc.","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"BANC","latitude":38.5472263,"longitude":-121.2386632,"master\_project\_id":"","name":"SMUD High Penetration Solar Pilot Project Anatolia (RES System)","om\_contractor":"","organization":"Sacramento Municipal Utilities District","owner\_1":"Sacramento Municipal Utility District","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.calsolarresearch.ca.gov/images/stories/documents/Hipen\_2011\_presentations/6\_SMUD\_Rawson.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Residential (Reliability)","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":75,"size\_kwh":1.76666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":46.0,"state":"California","status":"De-Commissioned","street\_address":"Anatolia Dr.","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-26T19:13:21Z","updated\_at\_by\_admin":"2016-06-14T21:27:05Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Sacramento Municipal Utility District","utility\_type":"Public Owned","vendor\_company":"SAFT","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Rancho Cordova","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"mrawson@smud.org","contact\_info\_visible":false,"contact\_name":"Mark Rawson","contact\_phone":"916-732-6364","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-11-22T00:09:18Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-10-01","desc":"Sacramento Municipal Utility District (SMUD) is piloting both residential energy storage (RES) units and community energy storage (CES) systems in Anatolia. So far, the research team has installed 15 RES units in the garages of neighborhood volunteers. Later this month, the team will set up three CES systems in the neighborhood. Each CES will be connected to the pad-mounted transformers on distribution feeders and will be sized to work with the group of homes serviced by each transformer. These are about three times larger than the residential units, but can be shared between five to ten homes.\r\n\r\nSMUD will continue to run tests and gather data through September 2012, giving the utility a nine-month experimental period with the RES units and roughly a six-month period for the CES units. Although complete results will not be available until the end of the year, the researchers will present preliminary data on March 19, 2012, at the PV America conference in San Jose, California.\r\n\r\nTechnical Details\r\n3 CES installations, each consisting of two 15 kW CES units in a common enclosure\r\nEach CES installation provides 30 kW of capacity with 30 kWh of usable energy storage from SAFT Li-Ion batteries\r\nEach CES installation is connected to the secondary of a 50 kVA pad mount transformer feeding approximately 9-12 homes\r\nThey will be operated to help answer critical questions related to reliability, system architecture optimization, operational control\r\nThe CES systems can be coordinated, in an aggregated fashion, as a single utility asset testing larger scale integration concepts\r\nThe CES is monitored/controlled via a wireless communications interface which will report critical inverter and battery status.\r\n\r\nNote: Funding designation is half designated to High Penetration Solar Pilot Project Anatolia (RES System)","developer":"","electronics\_provider":"PowerHub","energy\_management\_software\_provider":"","funding\_amount\_1":2150000.0,"funding\_amount\_2":830000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 - RD&D","funding\_source\_2":"State/Provincial/Regional","funding\_source\_3":"","funding\_source\_details\_1":"SunShot Initiative ","funding\_source\_details\_2":"Sacramento Municipal Utility District","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":795,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/795/CES.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/795/thumb\_CES.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/795/partner\_CES.JPG"}},"integrator\_company":"Silent Power Inc.","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"BANC","latitude":38.5520896,"longitude":-121.2411748,"master\_project\_id":null,"name":"SMUD High Penetration Solar Pilot Project Anatolia (CES System)","om\_contractor":"","organization":"Sacramento Municipal Utilities District","owner\_1":"Sacramento Municipal Utility District","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.calsolarresearch.ca.gov/images/stories/documents/Hipen\_2011\_presentations/6\_SMUD\_Rawson.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Residential (Reliability)","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":90,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"De-Commissioned","street\_address":"Anatolia village","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-26T19:21:22Z","updated\_at\_by\_admin":"2016-06-14T21:28:01Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Sacramento Municipal Utility District","utility\_type":"Public Owned","vendor\_company":"Saft","zip":""}},{"project":{"announcement\_on":"2022-06-01","approval\_status":1,"city":"New York","commissioning\_on":"2022-04-15","companion":"","construction\_on":"2022-06-01","contact\_city":"","contact\_country":"","contact\_email":"bill@elecyr.com","contact\_info\_visible":true,"contact\_name":"Bill Southworth","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-11-22T12:36:34Z","created\_by\_id":170,"debt\_investor":"","decommissioning\_on":null,"desc":"Grid to battery for electric vessel propulsion within New York harbor. Unit is located aboard the vessel, so location is subject to change! ","developer":"","electronics\_provider":"Elecyr Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":796,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/796/4\_axial.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/796/thumb\_4\_axial.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/796/partner\_4\_axial.jpg"}},"integrator\_company":"Elecyr Corporation","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.7481266,"longitude":-74.0083151,"master\_project\_id":null,"name":"Schooner America 2.0 Electric Populsion","om\_contractor":"","organization":"Elecyr Corporation","owner\_1":"Classic Harbor Line","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.professionalmariner.com/October-November-2014/Classic-schooner-equipped-with-modern-propulsion-redundancy/","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transportation Services","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":250,"size\_kwh":2.5,"size\_kwh\_hours":2,"size\_kwh\_minutes":30.0,"state":"New York","status":"Operational","street\_address":"Chelsea Pier","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-29T01:05:45Z","updated\_at\_by\_admin":"2014-08-01T17:41:01Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Consolidated Edison Company of New York (Con Edison)","utility\_type":"Investor Owned","vendor\_company":"Elecyr Corporation","zip":"10011"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Luenersee","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"info@illwerke.at ","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2013-11-23T02:39:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Lünerseewerk is primarily used as a pumped storage plant built in 1958. \r\n\r\nThe power house of the Lünerseewerkes is a typical construction of the 50s. Even in the wake of modernization in the powerhouse Illwerke are trying to take on the architecture of consideration and to obtain the greatest possible extent.\r\n\r\nTechnical features\r\nThe Lünerseewerk was at the time of commissioning the most powerful pumped storage plant in the world. The penstock to Lünerseewerk was conducted freely concrete benchmarks, the transmission of the anchor forces was not made ​​by the previously conventional concreting of the pipes, but by steel structures.\r\n\r\nWith a lifting height of max. 1 005 m were the storage pumps up to then the most powerful of its kind A new element in the construction of power plants put the hydraulic starting converter between the turbine and the pump represents the extremely high peripheral speed of the rotor of the motor generator overspeed of the machine set required special designs to accommodate the large centrifugal forces. \r\n\r\nThe distribution pipeline instructed regarding the internal pressure and diameter on the all-time high characteristics.\r\n\r\nThe end of the gravity tunnel partenen - Latschau is expanded as pumping water channel for the Lünerseewerk. This allows water quantities that come from partenen be pumped through the Lünerseewerk directly into the Luenersee. In execution, the entire gradient from Luenersee to Rodund available.\r\n\r\nAlternatively, it is possible to supply about backing pumps water from the reservoir Latschau the pumping water channel and thus the pumping operation. The amount of pumping water channel through the machine hall of Lünerseewerkes maintains the required inlet pressure for the pump. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":798,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/798/luenerseewerk\_1\_rdax\_192x133.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/798/thumb\_luenerseewerk\_1\_rdax\_192x133.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/798/partner\_luenerseewerk\_1\_rdax\_192x133.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":47.0531826,"longitude":9.7529724,"master\_project\_id":null,"name":"Lünerseewerk Pumped Hydro Storage Plant","om\_contractor":"","organization":null,"owner\_1":"Vorarlberger Illwerke AG","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.illwerke.at/inhalt/at/192.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":232000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"6773 Vandans","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:41:31Z","updated\_at\_by\_admin":"2013-12-06T21:47:20Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-11-23","approval\_status":0,"city":"Rodundwerk","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@illwerke.at","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2013-11-23T02:45:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Absorbed motor power in pump operation 41 MW\r\nstandard capacity 332 million kWh\r\n\r\nThe energy produced from the Gefällstufe Latschau - Rodund is used to generate peak and control energy from the water volumes of the annual Kops, Silvretta, Luenersee and the Vermuntsee and other tributaries. In addition, the Rodundwerk comes I also the task of Wälzpumpspeicherung to.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":799,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/799/rodundwerkI\_1\_rdax\_192x133.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/799/thumb\_rodundwerkI\_1\_rdax\_192x133.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/799/partner\_rodundwerkI\_1\_rdax\_192x133.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":47.08514,"longitude":9.88443,"master\_project\_id":"554","name":"Rodundwerk I Pumped Hydro Station","om\_contractor":"","organization":null,"owner\_1":"Vorarlberger Illwerke AG","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.illwerke.at/inhalt/at/194.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":198000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Vandans","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-10-15T18:39:28Z","updated\_at\_by\_admin":"2014-10-15T18:39:28Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Rifa","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@illwerke.at","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2013-11-23T02:51:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"For simultaneous operation of Kopswerkes I and Vermuntwerkes the accumulated water from the equalization tank partenen is relocated to the balance tank Rifa and the slope of the process, used by turbine operation in power plant Rifa. In off-peak periods, a pump operating in the reverse direction. The Rifawerk thus establishes water management connection of the two equalization tanks partenen and Rifa. \r\nTo ensure the quality of the electrical energy and to further consolidate the position of Illwerke in the liberalized market, the balancing reservoir Rifa was enlarged in partenen. By increasing the dam around 5 m and the establishment or increase of retaining walls on the crest of the content of the basin from 0.6 to 1.27 million cubic meters of water was increased. The commissioning of the elevated tank in the autumn of 2004 (dam increase) or in autumn 2010 (retaining walls).\r\n\r\nIt also takes over the function as underwater and pumped storage reservoir basin for the Kops II.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":800,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/800/rifawerk\_1\_rdax\_192x133.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/800/thumb\_rifawerk\_1\_rdax\_192x133.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/800/partner\_rifawerk\_1\_rdax\_192x133.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":46.9782553,"longitude":10.0383768,"master\_project\_id":null,"name":"Rifawerk Pumped Hydro Plant","om\_contractor":"","organization":null,"owner\_1":"Vorarlberger Illwerke AG","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.illwerke.at/inhalt/at/190.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":7000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"6793 Gaschurn","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:41:18Z","updated\_at\_by\_admin":"2013-12-06T21:54:14Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Lünersee","commissioning\_on":null,"companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"Austria","contact\_email":"engineering@illwerke.at","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2013-11-23T03:01:47Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The design flow of the dam allows 1.5 m³ per second with a minimum/maximum gross head of 442/522 meters. The net control capacity of inflow is around 18 million kWh / a.\r\n\r\nMotor power pump operation allows a maximum of 15 MW with a turbine capacity of about 12 MW. The flow of the storage pump is 2.6 m³ per second. Water flow in turbine operation is 2.6 m³ per second.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":801,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/801/rellswerk\_grafik1\_rdax\_192x136.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/801/thumb\_rellswerk\_grafik1\_rdax\_192x136.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/801/partner\_rellswerk\_grafik1\_rdax\_192x136.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":47.0531826,"longitude":9.7529724,"master\_project\_id":null,"name":"Rellswerk Pumped Hydro Project","om\_contractor":"","organization":null,"owner\_1":"Vorarlberger Illwerke AG","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.illwerke.at/inhalt/at/992.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":12000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Vadans","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:41:12Z","updated\_at\_by\_admin":"2013-12-06T21:59:41Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-11-23","approval\_status":1,"city":"Satrasala","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"India","contact\_email":"jans@masterdrill.co.za; mgdir@apgenco.gov.in; dir-projects@apgenco.gov.in","contact\_info\_visible":false,"contact\_name":"Jan Schoonraad","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"India","created\_at":"2013-11-23T03:28:34Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Presently, the 700 MW reversible hydro turbines (7 x 100 MW) located at the toe of Nagarjuna Sagar Dam are unable to operate in pumping mode due to non availability of tail pond for storing the released water during the power generation mode. With the completion of tail pond, surplus electricity from the electricity grid would be used for pumping the water back to the Nagarjuna Sagar reservoir and recycled for meeting peaking load on daily basis. Thus surplus electricity is consumed when it is available and used to meet the peak electricity requirements without letting the water out of the Nagarjuna Sagar tail pond. 700 MW peaking power for eight hours duration can be met from the one Tmcft of live storage water capacity available in the tail pond.\r\n\r\nhttp://en.wikipedia.org/wiki/Nagarjuna\_Sagar\_Dam","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":802,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/802/Nagarjuna\_Sagar\_Dam\_Andhra\_Pradesh.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/802/thumb\_Nagarjuna\_Sagar\_Dam\_Andhra\_Pradesh.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/802/partner\_Nagarjuna\_Sagar\_Dam\_Andhra\_Pradesh.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":16.5919286,"longitude":79.4851753,"master\_project\_id":null,"name":"Nagarjuna Sagar Pumped Hydro Station Tail Pond Project","om\_contractor":"","organization":null,"owner\_1":"APGenco","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://en.wikipedia.org/wiki/Nagarjuna\_Sagar\_tail\_pond","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":700000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Andhra Pradesh","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-16T18:50:18Z","updated\_at\_by\_admin":"2016-05-16T18:50:18Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Srisailam ","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"India","contact\_email":"mgdir@apgenco.gov.in, dir-projects@apgenco.gov.in","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"India","created\_at":"2013-11-23T18:55:31Z","created\_by\_id":1,"debt\_investor":"World Bank","decommissioning\_on":null,"desc":"The Srisailam Dam is a dam constructed across the Krishna River at Srisailam in the Kurnool district in the state of Andhra Pradesh in India and is the 3rd largest capacity hydroelectric project in the country.\r\n\r\nThe dam was constructed in a deep gorge in the Nallamala Hills in Kurnool District, 300 m (980 ft) above sea level. It is 512 m (1,680 ft) long, 269.748 m (885.00 ft) high and has 12 radial crest gates. It has a reservoir of 800 km2 (310 sq mi). The left bank power station houses 6 × 150 MW reversible Francis-pump turbines (for pumped-storage) and the right bank contains 7 × 110 MW Francis-turbine generators.\r\n\r\nDam and spillways\r\nHeight\t145.10 m (476 ft)[1][2]\r\nLength\t512 m (1,680 ft)\r\nImpounds\tKrishna River\r\nSrisailam Reservoir\r\nCatchment area\t206,040 km2 (79,550 sq mi)\r\nSurface area\t800 km2 (310 sq mi)","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":803,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/803/220px-SrisailamDam01-India.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/803/thumb\_220px-SrisailamDam01-India.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/803/partner\_220px-SrisailamDam01-India.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":16.0732748,"longitude":78.8687291,"master\_project\_id":null,"name":"Srisailam Pumped Hydro Storage","om\_contractor":"","organization":null,"owner\_1":"APGenco","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://en.wikipedia.org/wiki/Srisailam\_Dam","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Primary Distribution","size\_kw":1670000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Andhra Pradesh","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:40:59Z","updated\_at\_by\_admin":"2013-11-23T18:59:50Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":0,"city":"Campolattaro ","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Italy","contact\_email":"Werner.steinmann@repower.com","contact\_info\_visible":false,"contact\_name":"Werner Steinmann ","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-11-23T19:26:56Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The planned project connects an existing lower dammed lake with a reservoir higher up to create a single system. This upper reservoir will be newly constructed in a natural dip. The penstocks (pressure duct and output lead) carrying the water are between 5 and 6 metres in diameter, and run for a total of 8 kilometres. They take the water to an underground powerhouse that can operate in turbine or pump mode. During periods of high demand the water drives the powerhouse turbines to generate electricity that is fed into the national 380 kV transmission grid. At periods of low demand, the plant takes up electricity from the grid to pump water into the upper reservoir, where it is stored ready to drive the turbines again at a later stage. 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The project includex engineering and civil construction works for nearly 9 kilometers of underground tunnels, a below-ground powerhouse chamber more than 50 meters high, surge and intake shafts, as well as all other related infrastructure. \r\n\r\nhttp://www.renewableenergyworld.com/rea/blog/post/2010/12/pumped-hydro-to-be-installed-at-portugals-venda-nova-iii","developer":"","electronics\_provider":"Siemens","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":805,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/805/8-Venda-Nova-III-abril14.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/805/thumb\_8-Venda-Nova-III-abril14.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/805/partner\_8-Venda-Nova-III-abril14.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.692695,"longitude":-8.027817,"master\_project\_id":null,"name":"Venda Nova III Pumped Hydro Station","om\_contractor":"","organization":null,"owner\_1":"Energias de Portugal (EDP)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.eib.org/attachments/pipeline/20080728\_nts1\_pt.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":736000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Distrito de Braga","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-16T19:35:57Z","updated\_at\_by\_admin":"2016-05-16T19:35:57Z","updated\_by":null,"updated\_by\_email":null,"utility":"Energias de Portugal (EDP)","utility\_type":"Investor Owned","vendor\_company":"Voith Hydro","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Minakami","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Japan","contact\_email":"info@wash.tepco.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-23T20:06:05Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Yagisawa dam has a height of 131 meters and length of 352 meters. The dam impounds the Tone River and forms a reservoir with a capacity of 204,300,000 m³, catchment area of 167.4 km², and surface area of 570 hectares.\r\n\r\nhttp://www3.toshiba.co.jp/power/english/hydro/products/pump/storage.htm","developer":"","electronics\_provider":"Toshiba","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":806,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/806/220px-Yagisawa-612-r1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/806/thumb\_220px-Yagisawa-612-r1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/806/partner\_220px-Yagisawa-612-r1.jpg"}},"integrator\_company":"Toshiba","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":36.6786996,"longitude":138.9990639,"master\_project\_id":null,"name":"Yagisawa Pumped Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Tokyo Electric Power Company (TEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://en.wikipedia.org/wiki/Yagisawa\_Dam","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Primary Distribution","size\_kw":240000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Gunma Prefecture","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:40:39Z","updated\_at\_by\_admin":"2013-12-06T22:01:50Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Public Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-11-23","approval\_status":0,"city":"Sapporo","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Japan","contact\_email":"prgroup@epmail.hepco.co.jp","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"81-11-251-4083","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-23T20:23:14Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Environmentally friendly hydroelectric power is well suited to Japan's unique topographical characteristics and climate, which provides abundant rainfall. Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.","developer":"","electronics\_provider":"Mitsubishi Electric, Hitachi ","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":807,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/807/220px-Takami-117-r1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/807/thumb\_220px-Takami-117-r1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/807/partner\_220px-Takami-117-r1.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":43.0620958,"longitude":141.3543763,"master\_project\_id":null,"name":"Takami Pumped Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Hokkaido Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.fepc.or.jp/english/energy\_electricity/location/hydroelectric/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Primary Distribution","size\_kw":200000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Hokkaidō","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-10-22T17:36:50Z","updated\_at\_by\_admin":"2014-10-22T17:36:50Z","updated\_by":null,"updated\_by\_email":null,"utility":"Hokkaido Electric Power Company","utility\_type":"Investor Owned","vendor\_company":"Mitsubishi Electric, Hitachi ","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Okawachi","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Japan","contact\_email":"fuel@kepco.co.jp","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"+81 6 6441 8821","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-23T20:49:11Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Environmentally friendly hydroelectric power is well suited to Japan's unique topographical characteristics and climate, which provides abundant rainfall. Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.\r\n\r\nhttp://www.hitachipowersystems.us/supportingdocs/forbus/hpsa/technical\_papers/brochures/Hitachi\_Hydroelectric\_Equipment.pdf\r\n\r\nhttp://en.wikipedia.org/wiki/Hydroelectricity\_in\_Japan#List\_of\_hydroelectric\_power\_stations\r\n\r\nhttp://www.fepc.or.jp/english/library/electricity\_eview\_japan/\_\_icsFiles/afieldfile/2009/04/02/erj2009\_18.pdf","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":808,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Hitachi","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":34.0237394,"longitude":131.9348585,"master\_project\_id":null,"name":"Okawachi Pumped Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Kansai Electric Power Company (KEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.jepic.or.jp/en/data/EPIJ2012Japan%20data.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Primary Distribution","size\_kw":1280,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Yamaguchi","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:40:27Z","updated\_at\_by\_admin":"2013-12-06T22:16:00Z","updated\_by":null,"updated\_by\_email":null,"utility":"Kansai Electric Power Company (KEPCO)","utility\_type":"Investor Owned","vendor\_company":"Hitachi","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Minamiaiki","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"info@wash.tepco.com","contact\_info\_visible":false,"contact\_name":"TEPCO Washington Office","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-23T22:04:26Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Kannagawa Hydropower Plant (神流川発電所) is partially operational. This entry details the capacity that is currently under construction with expected commissioning of 4X470 MW turbines in 2022. \r\n\r\nThe power plant utilizes the Minamiaiki River along with an upper and lower reservoir created by two dams, the upper Minamiaiki Dam and the lower Ueno Dam. The power station in between the two dams will contain six 470 MW pump-generators for a total installed capacity of 2,820 MW. When completed, the plant will have the second-largest (after Bath County Pumped Storage Station) pumped-storage power capacity in the world.\r\n\r\nThe company says Units 1 and 2 are the first in the world to use a \"split runner,\" which enables simultaneous operation of both the pump and turbine blade. Co-developed with Toshiba, the technology increases the output by 20 MW per unit.\r\n\r\nhttp://www.jepic.or.jp/en/data/EPIJ2012Japan%20data.pdf","developer":"Tokyo Electric Power Company (TEPCO)","electronics\_provider":"Hitachi, Mitsubishi Heavy Industries, Toshiba","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":809,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/809/kannagawa\_\_1\_.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/809/thumb\_kannagawa\_\_1\_.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/809/partner\_kannagawa\_\_1\_.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":36.0359852,"longitude":138.5469897,"master\_project\_id":null,"name":"Kannagawa Pumped Hydro Plant no.3 - 6","om\_contractor":"","organization":null,"owner\_1":"Tokyo Electric Power Company (TEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.powermag.com/issues/cover\_stories/Kannagawa-Hydropower-Plant-Japan\_461.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"Electric Energy Time Shift","service\_use\_case\_5":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":1880000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Nagano","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:40:20Z","updated\_at\_by\_admin":"2013-11-23T22:06:54Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"Toshiba","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Tochigi Prefecture","commissioning\_on":"2022-06-01","companion":"","construction\_on":"2022-12-01","contact\_city":"","contact\_country":"","contact\_email":"webmaster@jpower.co.jp","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-23T22:38:00Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Under an effective head of 478m, this pumped storage power plant has an installed capacity of 675MW. The upper pond, created taking advantage of the natural topography, is entirely lined with asphalt. Due to the high pressure under the high head, the lower part of the three penstocks are made of 70kg/mm2 high-tensile steel with a maximum thickness of 34mm.\r\n\r\nEnvironmentally friendly hydroelectric power is well suited to Japan's unique topographical characteristics and climate, which provides abundant rainfall. Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.\r\n\r\nhttp://www.jpower.co.jp/english/international/consultation/detail\_old/se\_as\_japan21.pdf\r\n\r\nhttp://www.jepic.or.jp/en/data/EPIJJapanData.pdf\r\n","developer":"Electric Power Development Co., Ltd.(J-Power)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":810,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/810/Capture.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/810/thumb\_Capture.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/810/partner\_Capture.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":36.0,"longitude":138.0,"master\_project\_id":null,"name":"Numappara Pumped Hydro Power Plant","om\_contractor":"","organization":null,"owner\_1":"Electric Power Development Co., Ltd.(J-Power)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.jpower.co.jp/english/international/consultation/detail\_old/se\_as\_japan21.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":675000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Honshu","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:40:14Z","updated\_at\_by\_admin":"2013-12-06T22:28:26Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Niigata Prefecture ","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"","contact\_email":"webmaster@jpower.co.jp","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-23T22:52:52Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Okukiyotsu No.2 enlarged the existing Okukiyotsu pumped storage power plant from 1,000MW to 1,600MW. This project uses two existing dams without any modification. The new waterway such as intake, headrace tunnel, surge tank, penstock, tailrace \r\ntunnel, another surge tank and outlet were installed in the layout almost parallelled with existing waterway. The powerhouse is located downstream of the lower reservoir adjacent to the existing powerhouse. This project has two generators; one is of conventional type of 429 rpm and the other has adjustable speed machine from 407 rpm to 450 rpm. \r\n\r\n\r\nhttp://www.jpower.co.jp/english/ir/pdf/fact05e.pdf\r\n\r\nhttp://www.jepic.or.jp/en/data/EPIJJapanData.pdf\r\n\r\nhttp://www3.toshiba.co.jp/power/english/hydro/products/pump/index02\_3.htm","developer":"Electric Power Development Co., Ltd.(J-Power)","electronics\_provider":"Toshiba","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":812,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/812/Capture.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/812/thumb\_Capture.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/812/partner\_Capture.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":36.0,"longitude":138.0,"master\_project\_id":null,"name":"Okikuyotsu (Okukiyotsu) No. 2 Pumped Hydro Storage Plant","om\_contractor":"","organization":null,"owner\_1":"Electric Power Development Co., Ltd.(J-Power)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.jpower.co.jp/english/international/facilities/index.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":600000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Honshū","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:40:07Z","updated\_at\_by\_admin":"2013-11-23T23:17:51Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"Toshiba","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Niigata Prefecture","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-05-01","contact\_city":"","contact\_country":"Japan","contact\_email":"webmaster@jpower.co.jp","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-23T23:03:26Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This pumped storage power plant consists of two reservoirs both created by dams on the adjacent rivers, two 823m-long headrace tunnels and a powerhouse with an installed capacity of 1,000 MW. Perpendicular to the pumped storage plant, the powerhouse was built on the ground immediately down-stream of the rock fill dam of the lower reservoir. The geological formation around the dam which is hydro-thermal altered the and site did not allow the construction of underground structure. \r\n\r\nhttp://www.jpower.co.jp/english/ir/pdf/fact05e.pdf\r\n\r\nhttp://www.jepic.or.jp/en/data/EPIJJapanData.pdf","developer":"Electric Power Development Co., Ltd.(J-Power)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":813,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/813/Capture.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/813/thumb\_Capture.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/813/partner\_Capture.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":36.0,"longitude":138.0,"master\_project\_id":null,"name":"Okikuyotsu (Okukiyotsu) Pumped Hydro Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Electric Power Development Co., Ltd.(J-Power)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.jpower.co.jp/english/international/consultation/detail\_old/se\_as\_japan25.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":1000000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Honshū","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:39:54Z","updated\_at\_by\_admin":"2013-11-23T23:14:21Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Ikehara","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-03-01","contact\_city":"","contact\_country":"","contact\_email":"webmaster@jpower.co.jp","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-23T23:56:06Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Ikehara Project is located on the Kitayama River which is a main tributary of the Shingu River, and consists of a concrete arch dam with a height of 111m and a reservoir with an effective storage capacity of 220.1x106m3. This reservoir serves as the upper reservoir in relation to the existing lower one at Nanairo Reservoir. Utilizing the effective head of 120.5m between both reservoirs, Ikehara pumped-storage power plant generates a maximum output of 350 MW.\r\n\r\nhttp://www.jpower.co.jp/english/international/facilities/index.html","developer":"Electric Power Development Co., Ltd.(J-Power)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":814,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/814/Capture.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/814/thumb\_Capture.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/814/partner\_Capture.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.042191,"longitude":135.975189,"master\_project\_id":null,"name":"Ikehara Pumped Hydro Power Plant","om\_contractor":"","organization":null,"owner\_1":"Electric Power Development Co., Ltd.(J-Power)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.jpower.co.jp/english/international/consultation/detail\_old/se\_as\_japan07.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":350000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Nara","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-10T18:01:49Z","updated\_at\_by\_admin":"2016-05-10T18:01:49Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Nagano ","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-04-01","contact\_city":"","contact\_country":"","contact\_email":"webmaster@jpower.co.jp","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T00:01:54Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Environmentally friendly hydroelectric power is well suited to Japan's unique topographical characteristics and climate, which provides abundant rainfall. Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.\r\n\r\nhttp://www.jpower.co.jp/english/international/facilities/index.html\r\n\r\n\r\n","developer":"Electric Power Development Co., Ltd.(J-Power)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":815,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/815/Capture.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/815/thumb\_Capture.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/815/partner\_Capture.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.6485496,"longitude":138.1942432,"master\_project\_id":null,"name":"Nagano Pumped Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Electric Power Development Co., Ltd.(J-Power)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.jpower.co.jp/english/international/consultation/detail\_old/se\_as\_japan18.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":220000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Nagano","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:39:35Z","updated\_at\_by\_admin":"2014-07-03T22:33:54Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Kunigami","commissioning\_on":"2022-05-16","companion":"","construction\_on":"2022-07-01","contact\_city":"","contact\_country":"","contact\_email":"ishikawasekitan@jpower.co.jp","contact\_info\_visible":false,"contact\_name":"ishikawasekitan","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":30000000.0,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T00:10:04Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-07-01","desc":"The Okinawa Yanbaru Seawater Pumped Storage Power Station was dismantled in 2016.\r\n\r\nJapan is surrounded on all sides by the sea, and its topography offers favorable conditions for constructing seawater pumped storage power stations. EPDC started the feasibility study of the project in 1987 and plans to commence operation in June 1992.CAD (Computer Aided Design) has been effectively utilized in the course of the study. An upper regulating pond of excavated type is to be made at around an elevation of 150m, approximately 600m from the shoreline. The water(27m3/s) would be conducted by a tunnel from an intake and be discharged from the outlet into the sea.\r\n\r\nhttp://en.wikipedia.org/wiki/Okinawa\_Yanbaru\_Seawater\_Pumped\_Storage\_Power\_Station","developer":"Electric Power Development Co., Ltd.(J-Power)","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Japan's Ministry of Economy, Trade and Industry (Agency for Natural Resources and Energy)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":816,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/816/Capture.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/816/thumb\_Capture.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/816/partner\_Capture.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":26.67347,"longitude":128.265624,"master\_project\_id":null,"name":"Okinawa Yanbaru Seawater Pumped Storage Power Station","om\_contractor":"","organization":"","owner\_1":"Electric Power Development Co., Ltd.(J-Power)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.jpower.co.jp/english/international/consultation/detail\_old/se\_as\_japan24.pdf","primary\_reference1":"http://www.japanupdate.com/2016/07/experimental-power-plant-in-kunigami-dismantled/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":30000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Okinawa","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2017-10-24T22:37:14Z","updated\_at\_by\_admin":"2014-07-03T22:08:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Gifu","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T00:36:35Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Environmentally friendly hydroelectric power is well suited to Japan's unique topographical characteristics and climate, which provides abundant rainfall. Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.\r\n\r\nhttp://www.fepc.or.jp/english/energy\_electricity/location/hydroelectric/\r\n\r\nhttp://www.industcards.com/ps-japan.htm","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":817,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/817/mazegawa.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/817/thumb\_mazegawa.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/817/partner\_mazegawa.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":35.4232984,"longitude":136.7606537,"master\_project\_id":null,"name":"Mazegawa Daiichi Pumped Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Chubu Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"MWh 421,420 (2009)","primary\_reference":"http://www.chuden.co.jp/english/corporate/ecor\_company/ecom\_reference/eref\_facilities/index.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":288000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Gifu Prefecture","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:39:19Z","updated\_at\_by\_admin":"2013-12-06T22:27:51Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"Hitachi","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Nagano","commissioning\_on":"2022-11-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T00:56:43Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Environmentally friendly hydroelectric power is well suited to Japan's unique topographical characteristics and climate, which provides abundant rainfall. Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. 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Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. 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With a height of 125 metres (410 ft), it is the tallest hollow-core concrete gravity dam in the world. It has a hydroelectric power generating station owned by the Chubu Electric Power Company. It supports a 137 MW pumped-storage hydroelectric power station.\r\n\r\nhttp://en.wikipedia.org/wiki/Hatanagi-I\_Dam","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":823,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/823/220px-Hatanagi\_I\_Dam\_2007-11-14.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/823/thumb\_220px-Hatanagi\_I\_Dam\_2007-11-14.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/823/partner\_220px-Hatanagi\_I\_Dam\_2007-11-14.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.308032,"longitude":138.203231,"master\_project\_id":null,"name":"Hatanagi No. 1 Pumped Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Chubu Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.chuden.co.jp/english/resource/ir/eirl\_investorsdatabook\_2013\_09.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":137000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Shizuoka","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:38:32Z","updated\_at\_by\_admin":"2014-07-03T21:15:15Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Nabara","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"Japan","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T02:56:16Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Environmentally friendly hydroelectric power is well suited to Japan's unique topographical characteristics and climate, which provides abundant rainfall. Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.\r\n\r\nTwo Hitachi francis pump type turbines were installed in 2001 and 2003. \r\n\r\nhttp://www.fepc.or.jp/english/energy\_electricity/location/hydroelectric/\r\n\r\nhttp://www.hitachipowersystems.us/supportingdocs/forbus/hpsa/technical\_papers/brochures/Hitachi\_Hydroelectric\_Equipment.pdf\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":824,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/824/220px-Nabara-1983-r1.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/824/thumb\_220px-Nabara-1983-r1.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/824/partner\_220px-Nabara-1983-r1.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":34.5411347,"longitude":132.5130768,"master\_project\_id":null,"name":"Nabara Pumped Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Chugoku Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://en.wikipedia.org/wiki/Nabara\_Dam","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":620000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Hiroshima Province","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:38:25Z","updated\_at\_by\_admin":"2013-12-06T22:23:51Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Takahashi","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T03:11:47Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Environmentally friendly hydroelectric power is well suited to Japan's unique topographical characteristics and climate, which provides abundant rainfall. Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.\r\n\r\nReservoir Capacity: 127,500,000 m3","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":825,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/825/shin.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/825/thumb\_shin.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/825/partner\_shin.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.822844,"longitude":133.400492,"master\_project\_id":null,"name":"Shin Nariwagawa Pumped Storage Plant","om\_contractor":"","organization":null,"owner\_1":"Chugoku Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.fepc.or.jp/english/energy\_electricity/location/hydroelectric/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":303000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Okayama","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:38:11Z","updated\_at\_by\_admin":"2014-07-03T23:35:45Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Kyogoku","commissioning\_on":"2022-10-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"prgroup@epmail.hepco.co.jp","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T04:25:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"One of three units that will be incorporated into the Kyoguku Pumped Hydro Power Plant. Note, each unit's commissioning date varies. Upon Completion in 2022 the plant will have a total installed capacity of 600 MW. \r\n\r\nEnvironmentally friendly hydroelectric power is well suited to Japan's unique topographical characteristics and climate, which provides abundant rainfall. Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":826,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/826/kyogoku\_hepco.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/826/thumb\_kyogoku\_hepco.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/826/partner\_kyogoku\_hepco.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":42.8582077,"longitude":140.8840876,"master\_project\_id":null,"name":"Kyogoku Pumped Hydro Power Station (Unit 1)","om\_contractor":"","organization":null,"owner\_1":"Hokkaido Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www3.toshiba.co.jp/power/english/topics/20151207/index.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Hokkaidō","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-16T19:43:42Z","updated\_at\_by\_admin":"2016-05-16T19:43:42Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Kyogoku","commissioning\_on":"2022-11-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Japan","contact\_email":"prgroup@epmail.hepco.co.jp","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T04:29:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"One of three units that will be incorporated into the Kyoguku Pumped Hydro Power Plant. Note, each unit's commissioning date varies. Upon Completion in 2022 the plant will have a total installed capacity of 600MW. \r\n\r\nEnvironmentally friendly hydroelectric power is well suited to Japan's unique topographical characteristics and climate, which provides abundant rainfall. Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":827,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/827/TTb\_kyogoku\_b.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/827/thumb\_TTb\_kyogoku\_b.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/827/partner\_TTb\_kyogoku\_b.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":42.8582077,"longitude":140.8840876,"master\_project\_id":null,"name":"Kyogoku Pumped Hydro Power Station (Unit 2)","om\_contractor":"","organization":null,"owner\_1":"Hokkaido Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www3.toshiba.co.jp/power/english/topics/20151207/index.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Hokkaidō","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-16T19:42:45Z","updated\_at\_by\_admin":"2016-05-16T19:42:45Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Kyogoku","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"prgroup@epmail.hepco.co.jp","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T04:32:53Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"One of three units that will be incorporated into the Kyoguku Pumped Hydro Power Plant. Note, each unit's commissioning date varies. Upon Completion in 2022 the plant will have a total installed capacity of 600MW. \r\n\r\nEnvironmentally friendly hydroelectric power is well suited to Japan's unique topographical characteristics and climate, which provides abundant rainfall. Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.\r\n\r\nhttp://www.fepc.or.jp/english/energy\_electricity/location/hydroelectric/\r\n\r\nhttp://www.hepco.co.jp/english/environment/pdf/report2008.pdf\r\n\r\nhttp://www.jepic.or.jp/en/data/EPIJ2012Japan%20data.pdf","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":828,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/828/TTb\_kyogoku\_b.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/828/thumb\_TTb\_kyogoku\_b.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/828/partner\_TTb\_kyogoku\_b.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":42.8582077,"longitude":140.8840876,"master\_project\_id":null,"name":"Kyogoku Pumped Hydro Power Station (Unit 3)","om\_contractor":"","organization":null,"owner\_1":"Hokkaido Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.hepco.co.jp/english/environment/pdf/report2008.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Hokkaidō","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-16T19:44:33Z","updated\_at\_by\_admin":"2016-05-16T19:44:33Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-08-07","approval\_status":1,"city":"Carthage","commissioning\_on":"2022-03-30","companion":"20 kW PV, 10 kW Wind","construction\_on":"2022-01-31","contact\_city":"Joplin","contact\_country":"United States","contact\_email":"dave.lucero@eaglepicher.com","contact\_info\_visible":true,"contact\_name":"Dave Lucero","contact\_phone":"719-330-8018","contact\_state":"MO","contact\_street\_address":"C & Porter Streets","contact\_zip":"64801","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-11-24T18:16:08Z","created\_by\_id":172,"debt\_investor":"","decommissioning\_on":null,"desc":"The Carthage Water & Electric Plant, in an effort to encourage customers to consider energy storage for residential and commercial use, asked EaglePicher to design a system which would demonstrate the potential for utility savings. EPT designed a system integrating renewable generation (solar and wind) as well as energy storage. This system will demonstrate how energy storage can offset utility costs by integrating renewable sources and lowering peak demand.\r\n\r\nThe demo system also provides technical insight and experience to Carthage Water & Electric Plant on issues associated with grid-tied systems.\r\n\r\nEaglePicher's Renewable Energy Storage System (RESS) will include a turnkey storage system with a single point connection and built in controls necessary to be safely Grid Tied. EaglePicher will install a single tier Power Pyramid™ system with Advanced Pb-Acid batteries and 20 kW PV solar and 10 kW wind. 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Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.\r\n\r\nhttp://www.kyuden.co.jp/var/rev0/0041/7746/dx84stsj4\_all.pdf","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":830,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":32.5074371,"longitude":130.6017433,"master\_project\_id":null,"name":"Ohira Pumped Hydro Power Plant","om\_contractor":"","organization":null,"owner\_1":"Kyushu Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.fepc.or.jp/english/energy\_electricity/location/hydroelectric/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":500000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Kumamoto","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:37:33Z","updated\_at\_by\_admin":"2014-07-04T00:17:44Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Miyazaki","commissioning\_on":"2022-07-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T18:30:10Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Environmentally friendly hydroelectric power is well suited to Japan's unique topographical characteristics and climate, which provides abundant rainfall. Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.\r\n\r\nhttp://www.kyuden.co.jp/var/rev0/0041/7746/dx84stsj4\_all.pdf\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":832,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/832/Capture.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/832/thumb\_Capture.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/832/partner\_Capture.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":31.9076736,"longitude":131.4202411,"master\_project\_id":null,"name":"Omarugawa Pumped Hydro Storage Station","om\_contractor":"","organization":null,"owner\_1":"Kyushu Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.jepic.or.jp/en/data/EPIJJapanData.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":1200000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Miyazaki","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:37:26Z","updated\_at\_by\_admin":"2014-07-04T00:16:38Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"Hitachi Mitsubishi Hydro Corporation","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Karatsu-shi","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T18:51:12Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Environmentally friendly hydroelectric power is well suited to Japan's unique topographical characteristics and climate, which provides abundant rainfall. Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.\r\n\r\nhttp://www.kyuden.co.jp/var/rev0/0041/7746/dx84stsj4\_all.pdf\r\n\r\nhttp://www.fepc.or.jp/english/energy\_electricity/location/hydroelectric/\r\n\r\n\r\n","developer":"","electronics\_provider":"Hitachi ","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":834,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/834/Capture.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/834/thumb\_Capture.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/834/partner\_Capture.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.431907,"longitude":129.945475,"master\_project\_id":null,"name":"Tenzan Pumped Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Kyushu Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.jepic.or.jp/en/data/EPIJJapanData.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":600000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Saga","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:37:18Z","updated\_at\_by\_admin":"2014-07-03T21:46:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"Hitachi Mitsubishi Hydro Corporation","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Hongawa","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Japan","contact\_email":"postmaster@yonden.co.jp","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T19:42:02Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Order to respond to the power demand increase peak, 615,000 permitted output in which case several pumping water to the upper reservoir occur on holidays and at night, in the surplus power of nuclear, thermal power plants generate electricity by using a drop of about 560m at the peak.\r\n\r\nEnvironmentally friendly hydroelectric power is well suited to Japan's unique topographical characteristics and climate, which provides abundant rainfall. Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.\r\n\r\nhttp://www.industcards.com/ps-japan.htm\r\n\r\nhttp://www.jepic.or.jp/en/data/EPIJJapanData.pdf\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":835,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/835/hongawa.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/835/thumb\_hongawa.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/835/partner\_hongawa.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":33.5588035,"longitude":133.5311675,"master\_project\_id":null,"name":"Hongawa (Motokawa) Pumped Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Shikoku Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.yonden.co.jp/energy/p\_station/hydro/page\_04.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":615000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Kochi","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:37:11Z","updated\_at\_by\_admin":"2013-12-06T22:26:27Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"MHI, Melco","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Kaneyama","commissioning\_on":"2022-05-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"Japan","contact\_email":"w7001181@tohoku-epco.co.jp","contact\_info\_visible":false,"contact\_name":"Civil Engineering and Architecture Department","contact\_phone":"022-799-6102","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T20:00:18Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Daini Numazawa is a pumped storage power plant on the Tadamigawa River, Japan. Water is pumped from a lower altitude run-of-river reservoir during periods of excess flow into Lake Numazawa and is subsequently fed through turbines at the Miyashita Power Plant. The scheme has an effective head of 220 m, a maximum discharge of 250 m3 and a maximum output of 460 MW.\r\n\r\nThe Tadamigawa River is part of the Aganogawa River system. At 210 km in length, with a catchment area of 7,710 km2 it is one of the largest rivers in Japan. It boasts a series of dams to maximise hydroelectric generating capacity. Tohoku Electric Power Company manages five dams in this system, generating 60% of their hydroelectric power. \r\n\r\nhttp://www.fepc.or.jp/english/energy\_electricity/location/hydroelectric/\r\n\r\nhttp://www.ieahydro.org/reports/Annex\_VIII\_CaseStudy0301\_Daini\_Numazawa\_Japan.pdf\r\n\r\nhttp://www.sustainablehydropower.org/site/environmental/schemes/daini\_numazawa.html\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":836,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":37.453851,"longitude":139.524298,"master\_project\_id":null,"name":"Daini Numazawa Pumped Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Tohoku Electric Power Company ","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.tohoku-epco.co.jp/ir/report/pdf/ar2013.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":460000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Fukushima Prefecture","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:37:04Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Matsumoto","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"info@wash.tepco.com","contact\_info\_visible":false,"contact\_name":"TEPCO Washington Office","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T20:15:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Environmentally friendly hydroelectric power is well suited to Japan's unique topographical characteristics and climate, which provides abundant rainfall. Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.\r\n\r\nhttp://www.jepic.or.jp/en/data/EPIJJapanData.pdf\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":837,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.168214,"longitude":137.771209,"master\_project\_id":null,"name":"Azumi, Inekoki Dam Pumped Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Tokyo Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.tepco.co.jp/en/useful/pdf-3/12i\_full-e.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":623000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Nagano","status":"Operational","street\_address":"3571-3 Azumi","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:36:56Z","updated\_at\_by\_admin":"2014-07-03T23:53:10Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-06-09","approval\_status":1,"city":"Tuchimuro","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"info@wash.tepco.com","contact\_info\_visible":false,"contact\_name":"TEPCO Washington Office","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T20:23:57Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Kazunogawa Dam (葛野川ダム) uses water from the Sagami River system to power an 800 MW pumped storage hydroelectric scheme. It is located 18 km (11 mi) east of Kōshū in Yamanashi Prefecture, Japan. \r\n\r\nUnit 3: 400 MW (Commercial operation to start after FY 2024 (planned)) ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":839,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/839/220px-Kamihikawa\_Dam.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/839/thumb\_220px-Kamihikawa\_Dam.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/839/partner\_220px-Kamihikawa\_Dam.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.6641575,"longitude":138.5684486,"master\_project\_id":null,"name":"Kazunogawa (No.3) Pump Expansion","om\_contractor":"","organization":null,"owner\_1":"Tokyo Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.tepco.co.jp/en/press/corp-com/release/betu14\_e/images/140609e0101.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":400000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Yamanashi","status":"Announced","street\_address":"3064-1 Seto Azakoganezawa","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-16T20:01:54Z","updated\_at\_by\_admin":"2016-05-16T20:01:54Z","updated\_by":null,"updated\_by\_email":null,"utility":"TEPCO","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Tuchimuro","commissioning\_on":"2022-06-09","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"info@wash.tepco.com","contact\_info\_visible":false,"contact\_name":"TEPCO Washington Office","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T20:32:00Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Kazunogawa Dam (葛野川ダム) uses water from the Sagami River system to power an 800 MW pumped storage hydroelectric scheme. It is located 18 km (11 mi) east of Kōshū in Yamanashi Prefecture, Japan. \r\n\r\nThe Kazunogawa (No.4) Pump Expansion project commissioned June 9, 2022 increased the dam's capacity by 400 MW.\r\n\r\nhttp://www.tepco.co.jp/en/press/corp-com/release/betu14\_e/images/140609e0101.pdf\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":840,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/840/Kazunogawa\_No.\_4.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/840/thumb\_Kazunogawa\_No.\_4.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/840/partner\_Kazunogawa\_No.\_4.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.6641575,"longitude":138.5684486,"master\_project\_id":null,"name":"Kazunogawa (No.4) Pump Expansion","om\_contractor":"","organization":null,"owner\_1":"Tokyo Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.tepco.co.jp/en/useful/pdf-3/12i\_full-e.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":400000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Yamanashi","status":"Operational","street\_address":"3064-1 Seto Azakoganezawa","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-16T19:59:19Z","updated\_at\_by\_admin":"2016-05-16T19:59:19Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Matsumoto","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"info@wash.tepco.com","contact\_info\_visible":false,"contact\_name":"TEPCO Washington Office","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T20:35:59Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The plant configuration consists of 2 X 65 MW Francis and 2 X 65 MW FPT turbines. The T/G supplier was Fuji and Hitachi. The dam utilizes water flow sourced from the Azusa River. \r\n\r\nEnvironmentally friendly hydroelectric power is well suited to Japan's unique topographical characteristics and climate, which provides abundant rainfall. Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.\r\n\r\nhttp://www.jepic.or.jp/en/data/EPIJJapanData.pdf\r\n\r\nhttp://www.industcards.com/ps-japan.htm\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":841,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/841/Midono-Dam.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/841/thumb\_Midono-Dam.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/841/partner\_Midono-Dam.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.154152,"longitude":137.747751,"master\_project\_id":null,"name":"Midono Pumped Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Tokyo Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.tepco.co.jp/en/useful/pdf-3/12i\_full-e.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":260000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Nagano","status":"Operational","street\_address":"3081-226 Azumi","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:36:34Z","updated\_at\_by\_admin":"2014-07-03T23:57:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Nasushiobara","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"info@wash.tepco.com","contact\_info\_visible":false,"contact\_name":"TEPCO Washington Office","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T20:40:51Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Environmentally friendly hydroelectric power is well suited to Japan's unique topographical characteristics and climate, which provides abundant rainfall. Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.\r\n\r\nhttp://www3.toshiba.co.jp/power/english/hydro/products/pump/index02\_3.htm\r\n\r\nhttp://www.jepic.or.jp/en/data/EPIJJapanData.pdf \r\n\r\n\r\n","developer":"","electronics\_provider":"Hitachi ","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":842,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":36.961698,"longitude":140.046066,"master\_project\_id":null,"name":"Shiobara Pumped Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Tokyo Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.tepco.co.jp/en/useful/pdf-3/12i\_full-e.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":900000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Tochigi","status":"Operational","street\_address":"453 Nishiyamakokuyurin","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:36:27Z","updated\_at\_by\_admin":"2013-12-06T22:21:05Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Tone-gun","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Japan","contact\_email":"info@wash.tepco.com","contact\_info\_visible":false,"contact\_name":"TEPCO Washington Office","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T20:48:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Tamahara Dam (玉原ダム) is a rock-fill embankment dam on a Tone River tributary in Gunma Prefecture of Japan. It is located 14 km (9 mi) north of Numata. It creates the upper reservoir for the 1,200 MW Tamahara Pumped Storage Power Station (玉原発電所). Construction began in 1973 and the dam was complete in 1981 while the power station was commissioned in 1986. It is 116 m (381 ft) tall and withholds a reservoir with a storage capacity of 14,800,000 m3 (11,999 acre·ft). Of that capacity, 13,000,000 m3 (10,539 acre·ft) is active (or useful) for power generation. The lower reservoir for the pumped-storage power station is created by the Fujiwara Dam, located 4 km (2 mi) to the northwest on another Tone River tributary. Power is generated during periods of high energy demand and pumping occurs during times when energy demand is low such as at night. The power station contains four 300 MW reversible Francis turbine pump-generators which serve to both pump water and generate electricity. The upper Tamahara Reservoir is at an elevation of 1,177 m (3,862 ft) and the lower Fujiwara Reservoir is at 651 m (2,136 ft) which affords the power station an effective hydraulic head of 518 m (1,699 ft). When pumping, the pump-generators can move up to 210 m3/s (7,416 cu ft/s) of water and when generating, they discharge up to 276 m3/s (9,747 cu ft/s).\r\n\r\nhttp://en.wikipedia.org/wiki/Tamahara\_Dam\r\n\r\nhttp://www.jepic.or.jp/en/data/EPIJJapanData.pdf\r\n\r\nhttp://www.suiryoku.com/gallery/gunma/tanbara/tanbara.html\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":843,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/843/b124030s.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/843/thumb\_b124030s.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/843/partner\_b124030s.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":36.7862665,"longitude":139.1625989,"master\_project\_id":null,"name":"Tanbara Pumped Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Tokyo Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.tepco.co.jp/en/useful/pdf-3/12i\_full-e.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":1200000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Gunma Prefecture","status":"Operational","street\_address":"Fujiwara Azaootonekokuyurin","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:36:19Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Uji","commissioning\_on":"2022-07-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Japan","contact\_email":"yoonhae@hyosung.com, finance.kepco.co.jp","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-11-24T21:10:35Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Using Lake Hōō as the lower reservoir, water is pumped up to the upper reservoir via two pump-generators. The upper reservoir is created by a rock-fill dam 34°53′42″N 135°51′13″E that is 91 m (299 ft) high, 255 m (837 ft) long and has a crest width of 11 m (36 ft). The dam also has structural volume of 2,338,000 m3 (82,565,691 cu ft) and withholds a reservoir of 7,227,000 m3 (5,859 acre·ft) of which 5,408,000 m3 (4,384 acre·ft) is active storage. From the upper reservoir, water can be released back down to the power station 34°53′30″N 135°51′34″E where the two 233 MW reversible Francis turbine pump-generators use it for power production.\r\n\r\nThis process can be repeated and generation usually occurs during peak usage periods. The high water level at the upper reservoir is 296 m (971 ft) above sea level while it is 78.5 m (258 ft) ASL in the lower reservoir. This affords the power station an effective hydraulic head of 219.35 m (720 ft). Its discharge capacity is 248 m3/s (8,758 cu ft/s). The first generator of the pumped-storage power station was operational in January 1970 and the second in July of that year. It has a maximum output of 466 MW.\r\n\r\nhttp://www.fepc.or.jp/english/energy\_electricity/location/hydroelectric/\r\n\r\nhttp://www.jepic.or.jp/en/data/EPIJJapanData.pdf\r\n\r\n\r\n\r\nhttp://en.wikipedia.org/wiki/Amagase\_Dam","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":844,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/844/220px-Kisen\_yama\_Dam\_survey.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/844/thumb\_220px-Kisen\_yama\_Dam\_survey.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/844/partner\_220px-Kisen\_yama\_Dam\_survey.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.8844606,"longitude":135.7998544,"master\_project\_id":null,"name":"Kisenyama Pumped Storage Plant","om\_contractor":"","organization":null,"owner\_1":"Kansai Electric Power Company (KEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://en.wikipedia.org/wiki/Amagase\_Dam","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":466000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Kyoto","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-10-22T17:38:18Z","updated\_at\_by\_admin":"2014-10-22T17:38:18Z","updated\_by":null,"updated\_by\_email":null,"utility":"Kansai Electric Power Company (KEPCO)","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Vyshhorod","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"office@ecu.gov.ua","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Dniprogidroenergo","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Ukraine","created\_at":"2013-11-25T02:08:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Kijev hydropower plant at Kijev dam are two integrated hydropower plant at the town Kijev , receiving hydropower from a separate jordfyllingsdam in the river Dnepr in Ukraine. Part of the production comes from a pumped storage power plant components from a traditional hydropower plant 25 km below the pump itself. The flow of water from the dam is 14,440 m³ / sec, and the vertical drop height up to 12.0 meters. Pump power plant uses the pent-up reservoir at 3 km ³ of water power plant as its lower reservoir. \r\n\r\nThe traditional hydropower plant has an installed capacity of 378 MW distributed on 20 turbines, while pumping plant delivers 235 MW (net 135 MW) in 6 turbines. The annual output is up to 625 GWh of electricity. Dam was completed in 1968 , while pumping plant was completed in 1972 . The dam has locks for river traffic.\r\n\r\nhttp://www.industcards.com/hydro-ukraine.htm\r\n\r\nhttp://www.ecu.gov.ua/","developer":"","electronics\_provider":"Kharkov","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":845,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/845/Kremenchug.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/845/thumb\_Kremenchug.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/845/partner\_Kremenchug.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":50.5904776,"longitude":30.4831982,"master\_project\_id":null,"name":"Kyivska (Kijev) Pumped Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"UKRHYDROENERGO OJSC","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://no.wikipedia.org/wiki/Kijev\_vannkraftverk","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":603000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Kiev\t","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:36:04Z","updated\_at\_by\_admin":"2013-11-25T02:36:21Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Yuzhnoukrainsk","commissioning\_on":"2022-08-31","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Ukraine","contact\_email":"smi@sunpp.atom.gov.ua, oinfo@sunpp.atom.gov.ua","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Ukrhydroproject","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Ukraine","created\_at":"2013-11-25T02:26:58Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Tashlyk Pumped Storage Plant is the second power component of the energy complex. Tashlyk PSP site located in the west of the district center Arbuzinka, three kilometers south of town Yuzhnoukrainsk.\r\n\r\nIts construction was started in 1981. The first hydraulic unit of Tashlyk PSP was put into operation in December 28, 2006, the second hydraulic unit – August 31, 2007.\r\n\r\nhttp://globalenergyobservatory.org/geoid/43025\r\n\r\nhttp://www.bchydro.com/content/dam/hydro/medialib/internet/documents/planning\_regulatory/iep\_ltap/ror/appx\_10a\_pumped\_storage\_screening\_assessment\_report.pdf\r\n\r\n\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":846,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/846/tgaes.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/846/thumb\_tgaes.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/846/partner\_tgaes.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":47.8228,"longitude":31.1775,"master\_project\_id":null,"name":"Tashlyk Pumped Hydro Power Station","om\_contractor":"South-Ukraine Electric Power Producing Complex","organization":null,"owner\_1":"Ukraine Government Owned","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Efficiency factor in generation mode is 87%;","primary\_reference":"http://www.sunpp.mk.ua/en/energocomplex/tashlyk\_storage\_plant","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Primary Distribution","size\_kw":302000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Mykolayiv","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:35:56Z","updated\_at\_by\_admin":"2013-11-25T02:28:34Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Federally Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Villarino","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"Spain","contact\_email":"vtrullencha@iberdrola.es, comunicacioningenieria@iberdrola.es, tsca@iberdrola.es ","contact\_info\_visible":false,"contact\_name":"Vicente Trullench Arenas ","contact\_phone":"+34 91 713 30 65 ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-11-25T03:24:27Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Villarino is an underground hydroelectric power plant in the province of Salamanca, western Spain. \r\n\r\nThe power plant is located in the catchment area of the River Duero, near the village Villarino near Salamanca, not far from the border with Portugal. It gets its water from Almendra dam.\r\n\r\nInstalled capacity of the plant is about 810 MW, divided into six reversible turbines. This is called a pumped storage plants which use water power from two reservoirs at different heights, where water from the lower reservoir can be pumped back into the upper reservoir during periods of lower demand for electricity.\r\n\r\nThe plant should not be confused with a power plant with the same name in Argentina.\r\n\r\nhttp://en.wikipedia.org/wiki/Almendra\_Dam\r\n\r\nhttp://www.seprem.es/ficha.php?idpresa=52&p=2","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":847,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/847/269px-Embalse\_de\_Almendra.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/847/thumb\_269px-Embalse\_de\_Almendra.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/847/partner\_269px-Embalse\_de\_Almendra.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":41.268575,"longitude":-6.4676609,"master\_project\_id":null,"name":"Villarino (Almendra) Reversible Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Iberdrola Sa","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://no.wikipedia.org/wiki/Villarino\_vannkraftverk","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":810000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Salamanca","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:35:49Z","updated\_at\_by\_admin":"2013-11-25T03:28:58Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Duero","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"Spain","contact\_email":"vtrullencha@iberdrola.es, comunicacioningenieria@iberdrola.es, tsca@iberdrola.es","contact\_info\_visible":false,"contact\_name":"Vicente Trullench Arenas","contact\_phone":"+34 91 713 30 65","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":60000000.0,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-11-25T03:41:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Aldeadávila Dam has a 422 MW pumped-storage capability. The dam's power plant contains 2 x 211 MW pumped-storage generators than can generate power in the normal way by allowing water to flow through its turbines. However, during periods when the demand for electricity is low (such as evenings, weekends, or during seasonal fluctuations), the dam can use its excess power generating capacity to pump water back into the reservoir—enhancing reservoir capacity and storing water for periods when the demand for electricity is high. At the time it was constructed, the Aldeadávila Dam had the largest pumping station in Europe. \r\n\r\nThe Aldeadávila Dam has two diversion tunnels, each 1,400 metres (4,600 ft) in length. Each tunnel has a 53-metre (174 ft) high surge tank. The dam also contains more than 12 kilometres (7.5 mi) of tunnels which divert water to the electrical generation turbines. There are six penstock tunnels, each about 5 metres (16 ft) in diameter. The design of the penstocks and auxiliary spillways using these tunnels has proved to be an issue, however. Cavitation problems have damaged these tunnels in the past. Until the Alcantara Dam was built in 1969, the Aldeadávila Dam was the largest hydroelectric power plant in Europe. As of 2010, it remains the largest in Spain. The dam's hydroelectric power station originally housed six 170,000 horsepower (130,000 kW) Francis turbines which generated 718 MW, about half that of Hoover Dam.In 1987, the Aldeadávila II power station extension was completed, boosting generating capacity by 400 MW.\r\n\r\nhttp://www.exergy.se/goran/hig/ses/06/hydro.pdf","developer":"Iberdrola","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":848,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/848/220px-Presa\_Aldead\_vila\_desembalsando.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/848/thumb\_220px-Presa\_Aldead\_vila\_desembalsando.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/848/partner\_220px-Presa\_Aldead\_vila\_desembalsando.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":40.9370288,"longitude":-5.6662927,"master\_project\_id":null,"name":"Aldeadávila Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Iberdrola","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://en.wikipedia.org/wiki/Aldead%C3%A1vila\_Dam","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":1139000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Salamanca","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:35:38Z","updated\_at\_by\_admin":"2013-11-25T03:48:40Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Changping","commissioning\_on":"2022-06-01","companion":"","construction\_on":"2022-09-01","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Beijing Hydroelectric Investigation and Design Institute","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-11-25T20:36:09Z","created\_by\_id":1,"debt\_investor":"Beijing government and the State Energy Investment Corporation","decommissioning\_on":null,"desc":"Shisanling Pumped Storage Power Station is located at a scenic spot in Beijing, with total installed capacity 800 MW, rated head 430 m, design annual generated energy 1246 million kWh and annual generating hours 1558, annual consumed energy for pumping 1669 million kWh and annual pumping hours 2086. The station connects to the Beijing-Tianjin-Tangshan power system via 2 circuits of 220 kV outgoing line.\r\n\r\nhttp://www.modernpowersystems.com/features/featureshi-san-ling-powers-beijing/\r\n\r\nhttp://www.chincold.org.cn/news/li080321-10-Shisanling.pdf","developer":"Voith Hydro, Elin Energieversorgung of Austria","electronics\_provider":"Geokon Instruments","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":849,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/849/220px-Entracque\_diga\_della\_piastra.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/849/thumb\_220px-Entracque\_diga\_della\_piastra.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/849/partner\_220px-Entracque\_diga\_della\_piastra.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":40.22066,"longitude":116.231204,"master\_project\_id":null,"name":"Shisanling (Ming Tombs) Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"North China Power Group (NCPG)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Design annual generated energy 1246 million kWh","primary\_reference":"http://hydrochina.net/en/businesslistcaseshow.aspx?ProductsID=770&CaseId=310&CateId=310&pid=288","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Electric Supply Capacity","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":800000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Beijing","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:35:31Z","updated\_at\_by\_admin":"2013-12-15T17:03:43Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Federally Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Chuzhou City","commissioning\_on":"2022-12-01","companion":"","construction\_on":"2022-12-01","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":2333000000.0,"cost\_OPEX":null,"country":"China","created\_at":"2013-11-25T20:54:56Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Langyashan pumped storage power station is located in the southwest suburb of Chuzhou city, Anhui province, 3 km away from Chuzhou, 105 km from Hefei city and 50 km from Nanjing city.\r\n\r\nThe characteristic parameters of the station are as follows: rated head 126 m, annual consumed energy for pumping 1172 million kWh. The station connects to the Anhui power system via 2 circuits of 220 kV outgoing line.\r\n\r\nThe total investment is RMB ￥2330 million yuan.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":850,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":32.301556,"longitude":118.317107,"master\_project\_id":null,"name":"Langyashan (琅琊山抽水蓄能电站) Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"Anhui Electric Power Co","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"856 million kWh and annual generating hours ","primary\_reference":"http://hydrochina.net/en/businesslistcaseshow.aspx?ProductsID=773&CaseId=310&CateId=310&pid=288","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":600000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Anhui","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:35:24Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Xianju","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"China","contact\_email":"intl@sinohydro.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-11-25T23:24:32Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Xianju pumped storage power station is a pure daily regulation pumped storage power station, and serves the functions of peaking and utilizing power at base load, and emergency reserve as well as frequency and phase modulation.\r\n\r\nFour single stage Francis reversible pump-turbines are installed at the station with rated capacity of 382.7 MW each. The parameters of the units are as follows:\r\n\r\nThe rated speed 375 r/min, diameter of runner 4.92 m, rated head 428 m, ratio of max. head to rated head 1.14. The annual generated energy 2513 million kWh with annual generating hours 1675, and annual consumed energy for pumping 3441 million kWh with annual pumping hours 2294.\r\n\r\nThe existing Xiaan reservoir is taken as the lower reservoir, and the upper reservoir is formed by filling two saddles at the natural depression. The distance between the upper and lower reservoirs is 2 km with height difference of 440 m.\r\n\r\nOwner/Developer's website is located at http://8j.sinohydro.com/\r\n\r\nhttp://8j.sinohydro.com/Web/News/NewsShow.asp?ID=11145 ","developer":"Sinohydro","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":851,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/851/20131031104325268.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/851/thumb\_20131031104325268.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/851/partner\_20131031104325268.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":28.846926,"longitude":120.728681,"master\_project\_id":null,"name":"Xianju (仙居) Pumped Storage Power Station","om\_contractor":"","organization":null,"owner\_1":"State Grid Corporation of China's (SGCC) ","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Estimated 2513 million kWh per year","primary\_reference":"http://hydrochina.net/en/businesslistcaseshow.aspx?ProductsID=779&CaseId=310&CateId=310&pid=288","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":1500000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Zhejiang","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:35:16Z","updated\_at\_by\_admin":"2013-12-03T17:48:53Z","updated\_by":null,"updated\_by\_email":null,"utility":"State Grid Corporation of China's (SGCC) ","utility\_type":"Federally Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Abingdon","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Petra.Nieckchen@efda.org","contact\_info\_visible":false,"contact\_name":"Petra Nieckchen","contact\_phone":"aline.duermaier@efda.org","contact\_state":"","contact\_street\_address":"nick.holloway@ccfe.ac.uk","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2013-11-27T06:56:34Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Annual consumption is very dependent on whether JET is operational or in shutdown. The peak of consumption here is during a 300s JET pulse – where over 300 megawatts of electrical power is pulled from the grid, and up to 400 megawatts is supplied from two large flywheels located in Culham, U.K. However, this is only for 30 seconds, every 20-30 minutes.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":852,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/852/CP81j-1677c-10-720x260.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/852/thumb\_CP81j-1677c-10-720x260.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/852/partner\_CP81j-1677c-10-720x260.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.6578355,"longitude":-1.2320366,"master\_project\_id":null,"name":"EFDA JET Fusion Flywheel","om\_contractor":"","organization":"","owner\_1":"EFDA Jet","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.euro-fusion.org/fusion/jet-tech/jets-flywheels/","primary\_reference1":"https://www.euro-fusion.org/faq/new-what-is-the-annual-electricity-consumption-of-the-jet-plant/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":400000,"size\_kwh":0.00833333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.5,"state":"Oxfordshire","status":"Operational","street\_address":"Culham Science Centre","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-10-24T23:41:57Z","updated\_at\_by\_admin":"2014-10-27T18:15:55Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"OX14 3DB"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Longgang ","commissioning\_on":null,"companion":"","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Powerwise New Energy","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-11-27T21:04:43Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"With the backdrop of hefty growth of power demand in Longgang area, Shenzhen City, the gap between peak and valley is getting more and more serious. The project is mainly used to achieve distribution network load shifting, frequency and voltage adjustment, isolated island operation and many other grid applications. As the domestic first MW-class energy storage power station, it has operated stably for 2 years, and has a model significance and practical value.\r\n\r\nSystem Features:24 clusters in BMS, the total battery capacity: 1MW\*3H，216 strings in a single cluster. \r\nSystem Configuration: BAMS(XP8341)\*2/BCMS(VP25W1)\*24/HVC\*24/BMU\*432 (PW1005)\r\n\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":855,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/855/2013.6.4\_15.2.43\_5916.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/855/thumb\_2013.6.4\_15.2.43\_5916.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/855/partner\_2013.6.4\_15.2.43\_5916.jpg"}},"integrator\_company":"Sifang","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":22.720358,"longitude":114.247468,"master\_project\_id":null,"name":"Southern Grid Baoqing Plant Phase-2 (南网宝清电站项目一期工程-2)","om\_contractor":"","organization":"N/A","owner\_1":"China Southern Power Grid","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.sifang-electric.com/index.php/en/projects/16/237","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Ramping ","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Guangdong","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-12T06:55:30Z","updated\_at\_by\_admin":"2013-12-06T22:36:20Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"China Southern Power Grid","utility\_type":"Federally Owned","vendor\_company":"CALB","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Tianjin","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-11-28T19:52:08Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Sino-Singapore Tianjin Eco-city is the 2nd flagship Government-to-Government project between Singapore and China after Suzhou Industrial Park. The project was mooted by then Singapore Senior Minister Goh Chok Tong and Chinese Premier Wen Jiabao in April 2007, against the backdrop of rapid urbanisation and increasing global attention on the importance of sustainable development. On 18 November 2007, Singapore Prime Minister Lee Hsien Loong and Chinese Premier Wen Jiabao signed a Framework Agreement for Singapore and China to jointly develop Sino-Singapore Tianjin Eco-city.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":856,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/856/Capture.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/856/thumb\_Capture.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/856/partner\_Capture.JPG"}},"integrator\_company":"State Grid Corporation of China (SGCC)","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":39.084158,"longitude":117.200983,"master\_project\_id":null,"name":"China Tianjin EcoCity Project (中新天津生态城储能示范项目)","om\_contractor":"","organization":null,"owner\_1":"Chinese Government","owner\_2":"Singapore Government","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.tianjinecocity.gov.sg/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Ramping ","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":15,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Tianjin","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2013-12-07T08:13:58Z","updated\_at\_by\_admin":"2013-12-06T23:01:29Z","updated\_by":null,"updated\_by\_email":null,"utility":"State Grid Corporation of China (SGCC)","utility\_type":"","vendor\_company":"Hitachi","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Longgang ","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"micheal.austin@byd.com","contact\_info\_visible":false,"contact\_name":"Micheal Austin","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-11-28T20:16:58Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"BYD Energy Power Research Institute has successfully established a 1MW battery based energy storage station, 200kW energy storage container and a 1MW PV Generation. The 1MW battery based energy storage station is the ever first one in the world with Fe-battery as storage media with following functions: Peak shaping, load leveling, power quality improving, and utility efficiency improving. The storage container is characterized with following functions: Short construction lead time, longer life, easy accessibility, higher reliability, less pollution, and less space. It has promising market foreground. The 1MW PV generation, bearing a design capacity of 1MW and with an area of 12,000 sq.m., is empowered with the in-house developed Multi-crystalline PV panels with 14.7% conversion efficiency. It has been put into application and well worth visits.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":858,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"BYD","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":22.720358,"longitude":114.247468,"master\_project\_id":null,"name":"BYD Shenzhen Longgang Demo 1 (比亚迪移动储能电站大型应用)","om\_contractor":"","organization":"BYD","owner\_1":"BYD","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"＞90%","primary\_reference":"http://www.prlog.org/10962763-electric-power-research-institute-of-byd.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"Ramping ","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Guangdong","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-04T06:33:58Z","updated\_at\_by\_admin":"2013-12-06T23:01:16Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Longgang","commissioning\_on":"2022-07-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"micheal.austin@byd.com","contact\_info\_visible":false,"contact\_name":"Micheal Austin","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-11-28T20:23:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"BYD Energy Power Research Institute has successfully established a 1MW battery based energy storage station, 200kW energy storage container and a 1MW PV Generation. The 1MW battery based energy storage station is the ever first one in the world with Fe-battery as storage media with following functions: Peak shaping, load leveling, power quality improving, and utility efficiency improving. The storage container is characterized with following functions: Short construction lead time, longer life, easy accessibility, higher reliability, less pollution, and less space. It has promising market foreground. The 1MW PV generation, bearing a design capacity of 1MW and with an area of 12,000 sq.m., is empowered with the in-house developed Multi-crystalline PV panels with 14.7% conversion efficiency. It has been put into application and well worth visits.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":859,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/859/case3.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/859/thumb\_case3.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/859/partner\_case3.png"}},"integrator\_company":"BYD","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":22.720358,"longitude":114.247468,"master\_project\_id":null,"name":"BYD Shenzhen Longgang Demo 2 (比亚迪移动储能电站大型应用)","om\_contractor":"","organization":"","owner\_1":"BYD","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.byd.com/usa/news-posts/chinas-largest-and-first-environmentally-friendly-battery-storage-station-is-in-service/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"Ramping ","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Guangdong","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-12T05:16:47Z","updated\_at\_by\_admin":"2013-11-28T20:23:53Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Xuejia","commissioning\_on":"2022-07-11","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"JBartell@strategen.com","contact\_info\_visible":false,"contact\_name":"Jake Bartell","contact\_phone":"4802484634","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-11-29T06:22:26Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Xuejiadao intelligent charging for storage integration demonstration power plant in Shandong power to implement the national energy development strategy, accelerate the construction of a strong intelligence network, services, economic and social development of the important effect of the project on July 11, 2022 put into trial operation, set charging for electric buses, passenger car battery charging centralized energy storage applied to one of the electric vehicle charging station, is currently the world's largest and most versatile service strongest electric vehicle charging stations. As of the end of May, Xuejiadao demonstration power plant has safely operated for 695 days, a total of 130,200 times for electricity, service vehicles traveling 17,342,000 km total, 17,169,000 degrees charging for electricity, alternative fuel consumption of about 4,930 tons, reduce carbon dioxide emissions by about 16,650 tons. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":862,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/862/Capture.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/862/thumb\_Capture.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/862/partner\_Capture.JPG"}},"integrator\_company":"State Grid Corporation of China (SGCC)","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.960069,"longitude":120.209501,"master\_project\_id":null,"name":"Qingdao XueJiadao Battery Pilot Project ","om\_contractor":"","organization":"Strategen Consulting","owner\_1":"State Grid Corporation of China (SGCC)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://wenku.baidu.com/view/f1f637785acfa1c7aa00ccc5.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Transportation Services","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":7020,"size\_kwh":1.5,"size\_kwh\_hours":1,"size\_kwh\_minutes":30.0,"state":"Qingdao","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-01T00:07:57Z","updated\_at\_by\_admin":"2014-10-26T22:07:46Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"State Grid Corporation of China (SGCC)","utility\_type":"Federally Owned","vendor\_company":"Wanxiang Group","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Hulunbeier","commissioning\_on":"2022-09-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"wuccd@163.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-11-29T06:34:47Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Used in combination with wind turbines and photovoltaic panels as energy sources as a micro-grid project. The project focused on providing electricity to the village via a PCS system that used lithium battery packs.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":863,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/863/20kw\_30kw\_\_.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/863/thumb\_20kw\_30kw\_\_.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/863/partner\_20kw\_30kw\_\_.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":49.211575,"longitude":119.765745,"master\_project\_id":null,"name":"Inner Mongolia Hulunbeier Village Micro-grid 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fish.\r\n\r\nTechnical data provided by Chinese Energy Storage Alliance http://www1.cnesa.org/indexe.php\r\n\r\nhttp://baike.soso.com/v171326.htm","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":865,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/865/4d086e061d950a7b2cd095ca0ad162d9f3d3572c10dfd1eb.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/865/thumb\_4d086e061d950a7b2cd095ca0ad162d9f3d3572c10dfd1eb.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/865/partner\_4d086e061d950a7b2cd095ca0ad162d9f3d3572c10dfd1eb.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":38.265728,"longitude":113.979207,"master\_project\_id":null,"name":"Gangnan 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renewable energy sources such as wind and solar power.\r\n\r\nUnder this system, water is pumped from a lower elevation reservoir to a higher elevation by using low cost, off-peak power production such as wind power during the night to run the pumps, and is released to generate power when demand peaks during the day or when electricity prices are higher.\r\n\r\nChina had only 14.55 GW of pumped storage hydropower capacity at the end of 2009, according to the State Grid.\r\n\r\nChina's total power generating capacity was 874 GW at the end of 2009.\r\n\r\nhttp://dictionary.sensagent.com/List%20of%20pumped-storage%20hydroelectric%20power%20stations/en-en/","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":866,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/866/miyun.gif","thumb":{"url":"../../ese-prod/uploads/project/image\_1/866/thumb\_miyun.gif"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/866/partner\_miyun.gif"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":40.376299,"longitude":116.842993,"master\_project\_id":null,"name":"Miyun Pumped-hydro Storage Station 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The dam has an effective capacity of 10 million m3.\r\n\r\nThe State Grid Corp of China, China's dominant grid operator, plans to raise its pumped storage hydropower generating capacity to 21 gigawatts (GW) by 2015 and 41 GW by 2020, complementing the fast development of irregular renewable energy sources such as wind and solar power.\r\n\r\nUnder this system, water is pumped from a lower elevation reservoir to a higher elevation by using low cost, off-peak power production such as wind power during the night to run the pumps, and is released to generate power when demand peaks during the day or when electricity prices are higher.\r\n\r\nChina had only 14.55 GW of pumped storage hydropower capacity at the end of 2009, according to the State Grid.\r\n\r\nChina's total power generating capacity was 874 GW at the end of 2009.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":867,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/867/01200000029620136353913315286\_140.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/867/thumb\_01200000029620136353913315286\_140.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/867/partner\_01200000029620136353913315286\_140.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":40.1415,"longitude":118.314715,"master\_project\_id":null,"name":"Panjiakou Pumped Hydro Power Station (潘家口)","om\_contractor":"","organization":null,"owner\_1":"North China 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cost, off-peak power production such as wind power during the night to run the pumps, and is released to generate power when demand peaks during the day or when electricity prices are higher.\r\n\r\nChina had only 14.55 GW of pumped storage hydropower capacity at the end of 2009, according to the State Grid.\r\n\r\nChina's total power generating capacity was 874 GW at the end of 2009.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":868,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":30.537713,"longitude":105.187863,"master\_project\_id":null,"name":"Cuntangkou Pumped Hydro Power Station (寸塘口)","om\_contractor":"","organization":null,"owner\_1":"Chinese 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The net head is 816 m. There are 4 Pelton turbines each capable of 3.16 m3/s throughput and able to produce 23.1 MW.\r\n\r\nThe State Grid Corp of China, China's dominant grid operator, plans to raise its pumped storage hydropower generating capacity to 21 gigawatts (GW) by 2015 and 41 GW by 2020, complementing the fast development of irregular renewable energy sources such as wind and solar power.\r\n\r\nUnder this system, water is pumped from a lower elevation reservoir to a higher elevation by using low cost, off-peak power production such as wind power during the night to run the pumps, and is released to generate power when demand peaks during the day or when electricity prices are higher.\r\n\r\nChina had only 14.55 GW of pumped storage hydropower capacity at the end of 2009, according to the State Grid.\r\n\r\nChina's total power generating capacity was 874 GW at the end of 2009.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":869,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":29.289455,"longitude":90.98414,"master\_project\_id":null,"name":"Yangzhuoyong Lake Pumped Hydro Storage Station (羊卓雍湖)","om\_contractor":"","organization":null,"owner\_1":"Chinese Government","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"84 GWh 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capacity to 21 gigawatts (GW) by 2015 and 41 GW by 2020, complementing the fast development of irregular renewable energy sources such as wind and solar power.\r\n\r\nUnder this system, water is pumped from a lower elevation reservoir to a higher elevation by using low cost, off-peak power production such as wind power during the night to run the pumps, and is released to generate power when demand peaks during the day or when electricity prices are higher.\r\n\r\nChina had only 14.55 GW of pumped storage hydropower capacity at the end of 2009, according to the State Grid.\r\n\r\nChina's total power generating capacity was 874 GW at the end of 2009.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":870,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":29.655143,"longitude":121.406995,"master\_project\_id":null,"name":"Sikou Pumped Hydro Storage Station (溪口)","om\_contractor":"","organization":null,"owner\_1":"Chinese 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In 1959 the first unit came online followed by all units coming online by April 1961.\r\n \r\nThe power plant was expanded from 1996 to 2000, after which time the installed capacity increased to 2 × 40MW. This is the first pumped storage power station in Anhui Province. \r\n\r\nThe State Grid Corp of China, China's dominant grid operator, plans to raise its pumped storage hydropower generating capacity to 21 gigawatts (GW) by 2015 and 41 GW by 2020, complementing the fast development of irregular renewable energy sources such as wind and solar power.\r\n\r\nUnder this system, water is pumped from a lower elevation reservoir to a higher elevation by using low cost, off-peak power production such as wind power during the night to run the pumps, and is released to generate power when demand peaks during the day or when electricity prices are higher.\r\n\r\nChina had only 14.55 GW of pumped storage hydropower capacity at the end of 2009, according to the State Grid.\r\n\r\nChina's total power generating capacity was 874 GW at the end of 2009.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":871,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":31.72717,"longitude":115.934366,"master\_project\_id":null,"name":"Xianghongdian Pumped-hydro Storage Station (响洪甸) ","om\_contractor":"","organization":null,"owner\_1":"Chinese 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grid operator, plans to raise its pumped storage hydropower generating capacity to 21 gigawatts (GW) by 2015 and 41 GW by 2020, complementing the fast development of irregular renewable energy sources such as wind and solar power.\r\n\r\nUnder this system, water is pumped from a lower elevation reservoir to a higher elevation by using low cost, off-peak power production such as wind power during the night to run the pumps, and is released to generate power when demand peaks during the day or when electricity prices are higher.\r\n\r\nChina had only 14.55 GW of pumped storage hydropower capacity at the end of 2009, according to the State Grid.\r\n\r\nChina's total power generating capacity was 874 GW at the end of 2009.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":872,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":30.783121,"longitude":115.399221,"master\_project\_id":null,"name":"Tiantang Pumped Hydro Storage Station (天堂)","om\_contractor":"","organization":null,"owner\_1":"Chinese 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Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":70000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Hubei","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:34:14Z","updated\_at\_by\_admin":"2013-12-06T20:23:42Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Federally 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such as wind and solar power.\r\n\r\nUnder this system, water is pumped from a lower elevation reservoir to a higher elevation by using low cost, off-peak power production such as wind power during the night to run the pumps, and is released to generate power when demand peaks during the day or when electricity prices are higher.\r\n\r\nChina had only 14.55 GW of pumped storage hydropower capacity at the end of 2009, according to the State Grid.\r\n\r\nChina's total power generating capacity was 874 GW at the end of 2009.\r\n\r\nhttp://www.waterpowermagazine.com/news/newstable-1-2-2056333/","developer":"","electronics\_provider":"Alstom","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":873,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":31.416911,"longitude":119.484211,"master\_project\_id":null,"name":"Shahe Pumped Hydro Storage Station (沙河)","om\_contractor":"","organization":null,"owner\_1":"Chinese 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Alstom has since updated the equipment with a new 1 x 20 MW turbine/generator unit, balance of plant, and control system.\r\n\r\nhttp://voith.com/en/Voith\_Pumped\_storage\_plants.pdf","developer":"Voith Hydro, São Paulo Tramway, Light and Power Company","electronics\_provider":"Alstom","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":874,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/874/pedreiraP.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/874/thumb\_pedreiraP.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/874/partner\_pedreiraP.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":-22.7418246,"longitude":-46.9009844,"master\_project\_id":null,"name":"Pedreira Pumped Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Empresa Metropolitana de Águas e Energia","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.alstom.com/Global/Power/Resources/Documents/Brochures/hydro-pumped-storage-power-plant.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":20000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"São Paulo","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:33:58Z","updated\_at\_by\_admin":"2013-12-06T20:25:38Z","updated\_by":null,"updated\_by\_email":null,"utility":"Empresa Metropolitana de Águas e Energia","utility\_type":"Federally Owned","vendor\_company":"Alstom","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Nanyang","commissioning\_on":"2022-09-01","companion":"","construction\_on":"2022-02-01","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Hangzhou Yatai Supervision & Consultation Co. 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The purpose of the dam is hydroelectric power generation and flood control. The dam supplies water to five turbine-generators in two different powerhouses for an installed capacity of 1,500 MW while it can also control a design 19,100 cubic metres per second (674,510 cu ft/s) flood. Additionally, it has a 300 MW pumped-storage hydroelectric generation capacity. It is named after Baekdu Mountain (White Mountain), near the city of Baishan.\r\n\r\nhttp://www.waterpub.com.cn/JHDB/DetailDam.asp?ID=12\r\n\r\nhttp://en.wikipedia.org/wiki/List\_of\_major\_power\_stations\_in\_Jilin\_province","developer":"","electronics\_provider":"Geokon Instruments","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":876,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":42.972097,"longitude":126.74631,"master\_project\_id":null,"name":"Baishan Pumped Hydro Storage Station (白山)","om\_contractor":"","organization":null,"owner\_1":"Chinese 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off-peak power production such as wind power during the night to run the pumps, and is released to generate power when demand peaks during the day or when electricity prices are higher.\r\n\r\nChina had only 14.55 GW of pumped storage hydropower capacity at the end of 2009, according to the State Grid.\r\n\r\nChina's total power generating capacity was 874 GW at the end of 2009.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":877,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":31.392786,"longitude":116.332951,"master\_project\_id":null,"name":"Fomo Pumped-hydro Storage Station (佛磨)","om\_contractor":"","organization":null,"owner\_1":"Anhui Kangyuan Electric 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The accumulation lake is close to the village of Kanalski vrh, it holds a little over 2 million cubic meters of water. The generator generates 185 MW when producing electricity and uses 180 MW when pumping water. The same turbine is used for pumping and generating electricity.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":null,"hidden":false,"id":878,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.0855,"longitude":13.668599,"master\_project\_id":null,"name":"Avče Pumped Hydro Storage Plant","om\_contractor":"","organization":null,"owner\_1":"HSE Group ","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://en.wikipedia.org/wiki/Av%C4%8De\_Pumped\_Storage\_Plant","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":185000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Slovenian Littoral","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:33:29Z","updated\_at\_by\_admin":"2014-07-30T23:56:02Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Fužine","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Croatia","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"+385 1 61 71 084","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Croatia","created\_at":"2013-11-30T22:33:49Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Vinodol hydro power system uses the waters of the basins of Lokvarka (including Križ brook) and Ličanka (Bajer, Lepenica and Potkoš reservoirs) and a few other smaller streams. While this catchment area is not large (about 80 km2), the energy value of this system is confirmed by the fact that the catchment area is located at a height above 700 m and that the gross head of the Vinodol power plant is 658 m, which is one of the highest heads of hydroelectric facilities achieved in Europe. The construction of the facilities began in 1939 and the system has been in operation since 1952. With the aim to increase production, the system was expanded in 1985 to include the pump storage power plant Lepenica.\r\n\r\nThe main parts of the Vinodol power plant are Lokvarka dam and reservoir, Fužine pump storage power plant and Bajer reservoir, Lepenica dam and reservoir, Lepenica pump storage plant, Križ pumping station, Lič pumping station, Lokvarka-Ličanka tunnel, Križ connecting tunnel, Lič pipeline, Kobljak-Razromir tunnel, penstock and powerhouse of Vinodol power plant.\r\n\r\nEnergy data:\r\n\r\nInstalled flow:Qi = 6.2 m3/s in Turbine mode, 5.3 m3/s in pumping mode\r\nNominal head: H = 17.95 (turbine)\r\nNominal head: H = 15.00 (pump)\r\nInstalled capacity: 1.14 MW (turbine mode)\r\nPump installed capacity: 1.25 MW","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":879,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/879/lepenica.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/879/thumb\_lepenica.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/879/partner\_lepenica.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":45.3049852,"longitude":14.7148369,"master\_project\_id":null,"name":"Lepenica Pumped Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"HEP Proizvodnja","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"0,4 GWh 2012 Production","primary\_reference":"http://www.hep.hr/proizvodnja/en/basicdata/hydro/west/vinodol.aspx#lepenica","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":1140,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Primorje-Gorski Kotar County","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-10-22T17:34:37Z","updated\_at\_by\_admin":"2014-10-22T17:34:37Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Fužine","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Croatia","created\_at":"2013-11-30T22:39:20Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Vinodol hydro power system uses the waters of the basins of Lokvarka (including Križ brook) and Ličanka (Bajer, Lepenica and Potkoš reservoirs) and a few other smaller streams. While this catchment area is not large (about 80 km2), the energy value of this system is confirmed by the fact that the catchment area is located at a height above 700 m and that the gross head of the Vinodol power plant is 658 m, which is one of the highest heads of hydroelectric facilities achieved in Europe. The construction of the facilities began in 1939 and the system has been in operation since 1952. With the aim to increase production, the system was expanded in 1985 to include the pump storage power plant Lepenica.\r\n\r\nThe main parts of the Vinodol power plant are Lokvarka dam and reservoir, Fužine pump storage power plant and Bajer reservoir, Lepenica dam and reservoir, Lepenica pump storage plant, Križ pumping station, Lič pumping station, Lokvarka-Ličanka tunnel, Križ connecting tunnel, Lič pipeline, Kobljak-Razromir tunnel, penstock and powerhouse of Vinodol power plant.\r\n\r\nEnergy data:\r\n\r\nInstalled flow: Qi = 10 m3/s in Turbine mode, 9 m3/s in pumping mode\r\nNet head: H = 37 m\r\nInstalled capacity: 4.6 MW (turbine mode)\r\nMotor power: 4.8 (in pumping mode)","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":880,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/880/fuzine.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/880/thumb\_fuzine.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/880/partner\_fuzine.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":45.3049852,"longitude":14.7148369,"master\_project\_id":null,"name":"Fužine Pumped Hydro Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"HEP Proizvodnja","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"1,8 GWh 2012 Production","primary\_reference":"http://www.hep.hr/proizvodnja/en/basicdata/hydro/west/vinodol.aspx#fuzine","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":4600,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Promorje-Gorski Kotar County","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:33:14Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Obrovac","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Croatia","created\_at":"2013-11-30T22:43:03Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Velebit is a pump storage hydro power plant. It is situated on the Zrmanja River, 10 km upstream of Obrovac. It uses watercourses of the Gračac Field, namely: Opsenica, Ričica, streams of Krivak and Otuča. In the pumping mode, the Velebit power plant in addition to the mentioned rivulets uses the waters of the Zrmanja River. In the latter case, using the nightly surplus of energy, it pumps the water from the lower reservoir Razovac into the upper reservoir Štikada in order for this same water to be used again to generate electricity.\r\n\r\nEnergy data:\r\n\r\nInstalled flow:\r\nQi = 60m3/s (2x30) (in turbine mode)\r\nQi = 40m3/s (2x20)(in pumping mode)\r\nDesign head: Ht = 517 m ( in turbine mode ), Hc = 559 m (in pumping mode)\r\nTurbine installed capacity: 276 MW (2x138)\r\nPump installed capacity: 240 MW (2x120)\r\nMean energy equivalent: 1.25 kWh/m3","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":881,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":44.2007328,"longitude":15.6811168,"master\_project\_id":null,"name":"Velebit Pump Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"HEP Proizvodnja","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"470 GWh 2012 Annual Production in Generator Mode","primary\_reference":"http://www.hep.hr/proizvodnja/en/basicdata/hydro/south/velebit.aspx","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":276000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Zadar County","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:33:08Z","updated\_at\_by\_admin":"2013-11-30T22:43:30Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Štěchovice","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Czech Republic","contact\_email":"martin.schreier@cez.cz","contact\_info\_visible":false,"contact\_name":"Martin Schreier (press officer)","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Czech Republic","created\_at":"2013-11-30T22:57:42Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Štěchovice Hydro Power Station was built between 1938 and 1947. The concrete dam with granite revetment is 22.5 m high and 120 m long. This waterworks includes a lock chamber, which overcomes the difference of 19.10 m between the lower and upper water levels and is unique in Europe, and also the reservoir of the pumped-storage power station Homole with a total capacity of 0.5 million m3, and two steel penstock shafts of 1.7 to 2 m diameter and length 590 m. The medium-head part of the power station with 2 Kaplan turbines with total installed capacity of 22.5 MW (2x11.25 MW) was commissioned in 1944. The pumped-storage power station was initially built between 1941 and 1947. After many years of intensive exploitation, it was shut down in 1991 and reconstructed between 1991 and 1996. Instead of two sets arranged in three stages of total capacity of 42 MW it is now equipped with a single set of a reversing Francis turbine and a motor generator, which give a total capacity of 220 MWh. The set is installed in an underground generator room built in a pit which is approximately 45 m high. The power station includes also two outdoor switching stations, 110 kV and 22 kV. Both parts of the power station are fully automatic and are controlled remotely from the Control Room of the Vltava Cascade. \r\n\r\nThe Štěchovice water reservoir was built between 1938 and 1944. The concrete dam with a granite revetment is 22.5 m high and 120 m long, with five spillways with crest gates. These spillways with the capacity of 2,400 m3/s are able to handle floods as catastrophic as the one in 1890.\r\n\r\nThe medium-head power station is equipped as a classic run-off-river hydroelectric power station, with two sets of Kaplan turbines. It further includes an outdoor 110 kV switching station, and outgoing and distribution transformers.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":882,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/882/EST-20140717.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/882/thumb\_EST-20140717.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/882/partner\_EST-20140717.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":49.846401,"longitude":14.421886,"master\_project\_id":null,"name":"Štěchovice Pumped Hydro Station","om\_contractor":"","organization":null,"owner\_1":"ČEZ Group","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.cez.cz/en/contacts/information-centers/stechovice-information-centers.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":45000,"size\_kwh":4.88333333333333,"size\_kwh\_hours":4,"size\_kwh\_minutes":53.0,"state":"252 08 Štěchovice","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:33:00Z","updated\_at\_by\_admin":"2014-07-17T14:02:09Z","updated\_by":null,"updated\_by\_email":null,"utility":"ČEZ Group","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Great Lake","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2013-11-30T23:31:28Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In 1957 a decision was made to stop water flowing south from Great Lake through the Shannon and Waddamana Power Stations and take it north to use the much bigger drop down the face of the Great Western Tiers. A fall of 830 metres was achieved using some of the most advanced engineering techniques available at that time. A six kilometre tunnel was drilled under a ridge to the northern edge of the Great Western Tiers. From here the water flows down a large high-pressure steel penstock and vertical shaft into Tasmania’s first underground power station at Poatin.\r\n\r\nThe Poatina Power Station is a huge underground excavation, as wide as a city street, as long as a city block and as high as a seven story building. It houses six 50 MW generators and is the State’s second largest power station.\r\n\r\nhttp://www.hydro.com.au/system/files/documents/Power-of-Nature\_APR2011\_web.pdf\r\n\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":883,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/883/Capture.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/883/thumb\_Capture.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/883/partner\_Capture.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":-41.8602187,"longitude":146.7602508,"master\_project\_id":null,"name":"Poatina Power Station","om\_contractor":"","organization":null,"owner\_1":"Hydro Tasmania","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.hydro.com.au/system/files/documents/PS\_Factsheets/Poatina\_Power\_Station-Fact-Sheets.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":300000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Tasmania","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:32:54Z","updated\_at\_by\_admin":"2013-11-30T23:33:02Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Siemens, Andritz","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Great Lake","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2013-11-30T23:35:47Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Tods Corner Power Station was developed to recover the available energy from the water out of Arthurs Lake Pumping Station. The power station is located on the south-eastern shore of Great Lake and is supplied with water via a 105 metre-long penstock connected to an open flume which carries the discharge from Arthurs Lake pumping station.\r\n\r\nA manually operated gate is installed at the intake to enable the penstock and turbine to be \r\ndewatered for maintenance and to control flow while filling the penstock. A draft tube valve is \r\nprovided for dewatering purposes.\r\nThe generator is connected to the system at its output voltage of 6.6kV via an SF6 circuit breaker \r\nand an overhead line to Arthurs Lake switchyard where it is connected to the transformer bank.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":884,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/884/Capture.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/884/thumb\_Capture.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/884/partner\_Capture.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":-41.8602187,"longitude":146.7602508,"master\_project\_id":null,"name":"Tods Corner Power Station","om\_contractor":"","organization":null,"owner\_1":"Hydro Tasmania","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.hydro.com.au/system/files/documents/PS\_Factsheets/TodsCorner\_Power\_Station-Fact-Sheets.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":1700,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Tasmania","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:32:45Z","updated\_at\_by\_admin":"2013-11-30T23:36:42Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Siemens","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Sfikia-Veria","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Greece","contact\_email":"i.argyrakis@dei.com.gr","contact\_info\_visible":false,"contact\_name":"Ioannis Argyrakis","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Archirodon","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Greece","created\_at":"2013-12-01T01:09:54Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Sfikia Pumped Hydro Power Station was the first pumped-storage plant in Greece. The dam is 81m high and 220m long. Power is produced via three 105 MW FPT turbines. \r\n\r\nhttp://www.industcards.com/ps-europe.htm","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":885,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/885/sfikia.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/885/thumb\_sfikia.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/885/partner\_sfikia.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":40.3856573,"longitude":22.2113777,"master\_project\_id":null,"name":"Sfikia Pumped Hydro Power Station","om\_contractor":"Public Power Corp (DEH)","organization":null,"owner\_1":"Public Power Corp (DEH)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://globalenergyobservatory.org/geoid/42802","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":315000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Imathia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:32:37Z","updated\_at\_by\_admin":"2014-08-05T19:34:20Z","updated\_by":null,"updated\_by\_email":null,"utility":"Public Power Corp (DEH)","utility\_type":"Federally Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Paranesti","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"i.argyrakis@dei.com.gr","contact\_info\_visible":false,"contact\_name":"Ioannis Argyrakis","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Greece","created\_at":"2013-12-01T01:16:33Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"A rock-fill dam on the Nestos River in the regional unit of Drama in the northeastern portion of Greece. it is 21 km (13 mi) north of Nikiforos and 21 km (13 mi) northeast of the town of Drama. The 172 m (564 ft) high dam is the tallest in Greece. It was constructed between 1986 and 1996. The purpose of the dam is irrigation and hydroelectric power production. Its reservoirs helps irrigate 80,937 ha (200,000 acres). 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Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":384000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Drama","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:32:29Z","updated\_at\_by\_admin":"2014-08-05T19:35:45Z","updated\_by":null,"updated\_by\_email":null,"utility":"Public Power Corp (DEH)","utility\_type":"Federally Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Carmona 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systems.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":887,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/887/ree\_almacena\_project.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/887/thumb\_ree\_almacena\_project.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/887/partner\_ree\_almacena\_project.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.471274,"longitude":-5.6418214,"master\_project\_id":null,"name":"Almacena Lithium Ion Battery","om\_contractor":"","organization":"N/A","owner\_1":"Red Eléctrica de España (REE) 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Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Seville","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-12T06:32:13Z","updated\_at\_by\_admin":"2014-07-16T20:21:51Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Red Eléctrica de España (REE) ","utility\_type":"","vendor\_company":"A123 (NEC Energy Solutions, Inc.)","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Ardales Y 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The purpose of the plant is to produce electricity at peak times by releasing water from the upper reservoir.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":888,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/888/300px-Centralencantada.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/888/thumb\_300px-Centralencantada.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/888/partner\_300px-Centralencantada.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.90817,"longitude":-4.763344,"master\_project\_id":null,"name":"Tajo De La Encantada (Málaga) Power Plant","om\_contractor":"","organization":null,"owner\_1":"Endesa","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://malagapedia.wikanda.es/wiki/Central\_Hidroel%C3%A9ctrica\_del\_Tajo\_de\_la\_Encantada","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":360000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Málaga","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:32:22Z","updated\_at\_by\_admin":"2014-07-30T20:11:31Z","updated\_by":null,"updated\_by\_email":null,"utility":"Red Eléctrica de España (REE)","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Kvinnherad","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Norway","created\_at":"2013-12-01T02:59:51Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Jukla power plant is located in Kvinnherad Municipality in Hordaland County. The power station exploits an elevation difference from the regulation reservoir in lake Juklavatn. Water is also collected from reservoirs in lakes Dravladalsvatn Jukladalsvatn and Kvanngrøvvatn as well as a few creek intakes. The cathment area encompasses the north west and north side of the Folgefonna glacier in Kvinnherad Jondal and Ullensvang municipalities. Lake Juklavatn is regulated between 1060 and 950 metres above sea level. Lake Dravladalsvatn between 957 and 880 metres above sea level. Lake Jukladalsvatn between 1083 and 950 metres above sea level. When the water has been used in the power station it is pumped onwards for use in Mauranger power plant. The power station started production in 1974 and has an installed capacity of 40 MW. Statkrafts subsidiary Skagerak Energi also has a shareholding in Jukla power plant.\r\n\r\nhttp://no.wikipedia.org/wiki/Jukla\_kraftverk","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":889,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":59.9361331,"longitude":5.9955943,"master\_project\_id":null,"name":"Jukla Hydro Power Plants ","om\_contractor":"","organization":null,"owner\_1":"Statkraft","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Production: 76 GWh","primary\_reference":"http://www.statkraft.com/energy-sources/power-plants/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":40000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Hordaland","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:32:15Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Hjelmeland","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Norway","created\_at":"2013-12-01T03:08:58Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Stølsdal power plant is a hydropower plant on the Ulla-Førre river system in Hjelmeland Municipality in Rogaland County. The power plant came online in 1986. The power plant has an installed capacity of 17 MW as a power plant and 2x3 MW of installed pump capacity. The water can be pumped up into Kvilldal power plant's intake reservoir. The power plant exploits the elevation difference of 103 metres from lake Kvivatnet and lake Bjørndalsvatnet. Lake Vassbotnvatnet is used as a regulation reservoir for the pumping station. The lake can be regulated between 475 and 470 metres above sea level. Statkrafts subsidiary Skagerak Energi also has a shareholding in Kvilldal power plant.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":890,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/890/Capture.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/890/thumb\_Capture.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/890/partner\_Capture.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":59.223399,"longitude":6.186539,"master\_project\_id":null,"name":"Stølsdal Pumped Hydro Power Plant","om\_contractor":"","organization":null,"owner\_1":"Statkraft","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":72.0,"ownership\_percentage\_2":null,"performance":"51 GWh","primary\_reference":"http://www.statkraft.com/energy-sources/power-plants/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":17000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Rogaland","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:32:06Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Suldal","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Norway","created\_at":"2013-12-01T03:12:54Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Saurdal power plant is located in Suldal Municipality, Rogaland County. The power plant came online in 1985-86, and is a reservoir and pumped storage power plant which exploits the water resources and waterfall from Norway's largest reservoir, Blåsjø. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":891,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/891/Capture.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/891/thumb\_Capture.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/891/partner\_Capture.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":59.49881,"longitude":6.526562,"master\_project\_id":null,"name":"Saurdal Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Statkraft","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":72.0,"ownership\_percentage\_2":null,"performance":"952 GWh ","primary\_reference":"http://www.statkraft.com/energy-sources/power-plants/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":640000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Rogaland","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:31:59Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Aurland","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@statkraft.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Norway","created\_at":"2013-12-01T03:23:18Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Aurland III is a hydropower plant at lake Vetlebotnvatn in Aurland in Sogn og Fjordane county. The power plant was opened in 1979 and is a combined power plant/pumped storage power plant. During summer, water is pumped from lake Vetlebotnvatn up to lake Nyhellervatnet. The water is then used for electricity production in the same plant during winter. Two reversible Francis turbines utilises a gross head of 400 metres from lake Nyhellervatnet. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":892,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/892/Capture.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/892/thumb\_Capture.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/892/partner\_Capture.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":60.90357,"longitude":7.201723,"master\_project\_id":null,"name":"Aurland III Hydro Power Plant","om\_contractor":"","organization":null,"owner\_1":"E-CO Energi ","owner\_2":"Statkraft ","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":7.0,"performance":"70 GWh ","primary\_reference":"http://www.statkraft.com/energy-sources/power-plants/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":270000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Sogn og Fjordane","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:31:52Z","updated\_at\_by\_admin":"2013-12-01T03:24:02Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Dychów","commissioning\_on":"2022-09-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"zewdsa@zewdsa.com.pl","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"(+48 68) 383 84 77 ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Poland","created\_at":"2013-12-01T03:37:55Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Dychów Hydro Power Plant uses water from the Bóbr River. The reservoir encompasses an area of 100 hectares and has a usable energy capacity of 3.6 million M^3. \r\n\r\nhttp://www.operator.enea.pl/blog/1/energetyka/2012-07-23/elektrownia-w-dychowie-140.html\r\n\r\nhttp://pl.wikipedia.org/wiki/Zesp%C3%B3%C5%82\_Elektrowni\_Wodnych\_Dych%C3%B3w","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":893,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/893/250px-Poland\_\_Dych\_w\_-\_Hydroelectric\_power\_station.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/893/thumb\_250px-Poland\_\_Dych\_w\_-\_Hydroelectric\_power\_station.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/893/partner\_250px-Poland\_\_Dych\_w\_-\_Hydroelectric\_power\_station.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":51.9863325,"longitude":15.0608199,"master\_project\_id":null,"name":"Dychów Hydro Power Plant","om\_contractor":"","organization":null,"owner\_1":"PGE Renewable Energy SA","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Efficiency of the pumping cycle to the level of 71% Estimate 80 GWh Annually","primary\_reference":"http://www.zewdsa.com.pl/ew-dychow,18,.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":90000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Bobrowice","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:31:43Z","updated\_at\_by\_admin":"2013-12-06T22:45:58Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Jezioro Sromowiekie","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":" sekretariat@niedzica.pl, niedzica@ns.onet.pl","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Energoprojekt-Warszawa, Skansa","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Poland","created\_at":"2013-12-01T03:48:17Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"First studies for this PSP scheme began in 1950 and development work continued until 1964 when comprehensive land use planning through the Dunajec River basin was completed. Approval was granted in 1968 and construction got underway in 1970/71. The first water storage facilities were commissioned in 1994 and the entire project completed in 1997. Above the reservoir is Niedzica Castle, built in the 14th century by the Hungarians to protect an important trade route through the Dunajec Valley.\r\n\r\nhttp://www.industcards.com/ps-poland.htm","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":894,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/894/niedzica-r.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/894/thumb\_niedzica-r.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/894/partner\_niedzica-r.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":49.4099645,"longitude":20.3267659,"master\_project\_id":null,"name":"Niedzica Pumped Storage Power Plant","om\_contractor":"Zespol Elektrowni Wodnych Niedzica S.A.","organization":null,"owner\_1":"Polish Government","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://globalenergyobservatory.org/geoid/42476","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":82800,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Malopolskie","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:31:36Z","updated\_at\_by\_admin":"2014-06-25T17:38:05Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"CKD, Skoda","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Porabka","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"sekretariat@zewpz.pl","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Poland","created\_at":"2013-12-01T03:58:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Porabka-Zar Pumped Storage Power Plant is the only power plant in Poland that is underground. The plant is a classic pumped storage power plant designed for regulation of the power system during load peaks and dips. Quick start-up power (180 sec. Working generational).\r\n\r\nPumping potential of the plant is up to 540MW.\r\n\r\nhttp://globalenergyobservatory.org/geoid/42466","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":895,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/895/300px-Zar\_zbiornik.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/895/thumb\_300px-Zar\_zbiornik.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/895/partner\_300px-Zar\_zbiornik.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":49.7704966,"longitude":19.2116631,"master\_project\_id":null,"name":"Porabka-Zar Pumped Storage Power Plant","om\_contractor":"","organization":null,"owner\_1":"Elek Szczytowo-Pompowe (esp)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual production is 640 GWh and pumping use is 840GWh, Cycle efficiency: 75% ","primary\_reference":"http://www.zewpz.pl/pzar.html#1","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":500000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Slaskie","status":"Operational","street\_address":"Energetyków 9","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:31:22Z","updated\_at\_by\_admin":"2013-12-06T22:59:07Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Pisoes","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Tony.Yonnone@edpr.com","contact\_info\_visible":false,"contact\_name":"Tony Yonnone","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Hidro-Eléctrica do Cávado","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Portugal","created\_at":"2013-12-01T04:57:53Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Alto Rabagão Dam, built in 1964 is one of the largest in Portugal and forms a large artificial lake with a rectangular format, 4 kms wide and almost 20 km long. The dams water source is provided via the Rabagão River.The dam is 94 meters high and has a water volume capacity of 1,117,000 m3. \r\n\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":896,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/896/61898.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/896/thumb\_61898.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/896/partner\_61898.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.737703,"longitude":-7.853632,"master\_project\_id":null,"name":"Alto Rabagão Hydro Power Plant","om\_contractor":"MAGOP","organization":null,"owner\_1":"Energias de Portugal (EDP)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.a-nossa-energia.edp.pt/centros\_produtores/empreendimento.php?item\_id=26","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":68000,"size\_kwh":14310.3333333333,"size\_kwh\_hours":14310,"size\_kwh\_minutes":20.0,"state":"Montalegre","status":"Operational","street\_address":"Viade de Baixo","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:31:06Z","updated\_at\_by\_admin":"2014-06-30T21:32:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"Energias de Portugal (EDP)","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Aguieira","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Portugal","contact\_email":"Tony.Yonnone@edpr.com","contact\_info\_visible":false,"contact\_name":"Tony Yonnone","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Portugal","created\_at":"2013-12-01T05:09:41Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Portugal utility Energias de Portugal (EDP) has awarded a contract to Spanish utility Iberdrola to manage and sell electricity from EDP's 336-MW Aguieira pumped-storage project and the 24-MW Raiva hydropower plant on Portugal's Mondego River.\r\n\r\nPortugal's competition authority required EDP to assign temporarily to another operator, for five years, the right to operate and manage the 360-MW Aguieira-Raiva complex. Autoridade da Concorrencia made that a condition in 2008 when it cleared EDP to operate the 259.2-MW Alqueva and 10-MW Pedrogao hydroelectric projects and to acquire the operators of about a dozen small hydropower projects.\r\n\r\nIn competition organized by EDP, Iberdrola submitted the winning bid to manage and market electricity from Aguieira-Raiva from April 1 until March 31, 2014.\r\n\r\nThe Aguieira project has reversible pumping capacity of 270 MW, representing 25 percent of all pumping capacity of that type in Portugal.\r\n\r\nhttp://www.hydroworld.com/articles/2009/03/edp-awards-management-of-336-mw-aguieira-24-mw-raiva-to-iberdrola.html\r\n\r\nhttp://cnpgb.inag.pt/gr\_barragens/gbingles/FichasIng/AguieirafichaIng.htm","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":897,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/897/cph\_aguiera\_foto\_01.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/897/thumb\_cph\_aguiera\_foto\_01.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/897/partner\_cph\_aguiera\_foto\_01.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":40.340285,"longitude":-8.196778,"master\_project\_id":null,"name":"Aguieira Hydro Power Station","om\_contractor":"Energias de Portugal EDP, Iberdorla","organization":null,"owner\_1":"Energias de Portugal (EDP)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Estimated Annual Production: 219 GWh ","primary\_reference":"http://www.a-nossa-energia.edp.pt/centros\_produtores/empreendimento.php?item\_id=4&cp\_type=he","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":336000,"size\_kwh":116.666666666667,"size\_kwh\_hours":116,"size\_kwh\_minutes":40.0,"state":"Coimbra","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:30:57Z","updated\_at\_by\_admin":"2014-06-30T20:40:15Z","updated\_by":null,"updated\_by\_email":null,"utility":"Energias de Portugal (EDP)","utility\_type":"Investor Owned","vendor\_company":"Vevey,Nohab,Mague, Alstom, Sorefame","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Taichung","commissioning\_on":"2022-10-21","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"China","contact\_email":"jhliu64@thu.edu.tw","contact\_info\_visible":false,"contact\_name":"Professor Liu","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Taiwan","created\_at":"2013-12-01T18:15:58Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"An independent solar powered battery exchange station for e-bikes and e-scooters was established at Tunghai University located in Taichung City in central Taiwan. It uses the solar power electronics provided by Kingroup Systems Corporation and the solar power controller utilizes the maximum power point tracking (MPPT) technology for charging 8 pieces of 12V, 75Ah Lead Acid batteries by 2KW solar panels. This is the one independent solar powered EV battery exchange station and can be duplicated easily. NEXcell had assisted Tunghai University in the design of EV battery exchange system and the set-up of this off-grid solar power station.\r\n","developer":"NEXcell BATTERY Co., Ltd","electronics\_provider":"Kingroup Systems Corporation","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":898,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"NEXcell BATTERY Co., Ltd","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":24.2332076,"longitude":120.9417368,"master\_project\_id":null,"name":"Tunghai Green Transportation Management and Development / Low Carbon Demonstration Project","om\_contractor":"","organization":null,"owner\_1":"Tunghai University","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://enger.thu.edu.tw","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Transportation Services","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":2,"size\_kwh":3.6,"size\_kwh\_hours":3,"size\_kwh\_minutes":36.0,"state":"Taiwan","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2013-12-07T08:13:28Z","updated\_at\_by\_admin":"2013-12-03T03:36:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Aldiere","commissioning\_on":"2022-11-26","companion":"","construction\_on":"2022-07-03","contact\_city":"","contact\_country":"Spain","contact\_email":"mcortes@grupocobra.com, amsalazar@grupocobra.com","contact\_info\_visible":false,"contact\_name":"Manuel Cortes; Ana Salazar","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Cobra","contractor\_2":"Sener ","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-12-03T19:33:41Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Located on the Guadix plateau in the Spanish province of Granada, Andasol 1 has started its test run in autumn 2008. The power plant project has been developed by Solar Millennium AG, Erlangen (Germany). The corporation concluded a partnership for the construction of the power plant with the ACS/Cobra group, Spain’s largest construction and plant engineering company, which in December 2004 entered into the 300 million Euro project by purchasing shares of the company Andasol 1 S.A. and which holds 75 percent of the shares today. Using the experience of Solar Millennium, the ACS/Cobra group is responsible for constructing the power plant; Flagsol GmbH, the technology subsidiary of Solar Millennium AG, provides the engineering for the solar field, i.e. planning, design and construction monitoring, as well as the controls of the solar field. 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Andasol 2 is identical in dimension with Andasol 1. ACS/Cobra, which is responsible for the construction of the power plant, entered also in this project holding 75 percent of the shares today. 25 percent of the shares are in ownership of Solar Millennium Verwaltungs GmbH, a subsidiary of Solar Millennium AG. 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Andasol 3 is identical in dimension with Andasol 1 and 2. Construction of Andasol 3 started with the commissioning of the early works in August 2008 and is planned to be finished in February 2011. Solar Millennium AG holds 50 percent of the shares of the project company Marquesado Solar S.A.. The subsidiary Solar Millennium Beteiligungen GmbH holds the remaining 50 percent of the shares. 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The Ouarzazate complex is set to develop into a 500 MW solar park that incorporates several utility-scale solar power plants using various solar technologies. The first plant within this complex is the 160 MW NOORo I CSP Project, where three hours of thermal energy storage is used to deliver power at the evening peak times.\r\n\r\nOn 19 November 2012, MASEN and the consortium led by ACWA Power signed a power purchase agreement valued at USD 900 million, for the sale of the net electricity output of the NOORo I CSP IPP with a capacity of 160MW. NOORo I CSP is located approximately 200 km south of Marrakesh. In June 2013, the project achieved financial close and started delivering clean energy at the start of 2016.","developer":"ACWA Power, Aries, TSK","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":903,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/903/nooro-i.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/903/thumb\_nooro-i.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/903/partner\_nooro-i.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":30.91987,"longitude":-6.893539,"master\_project\_id":null,"name":"NOOR I (Ouarzazate) CSP Solar Plant","om\_contractor":"","organization":"","owner\_1":"ACWA Power Ouarzazate","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.nrel.gov/csp/solarpaces/project\_detail.cfm/projectID=270","primary\_reference1":"http://www.acwapower.com/en/projects/assets/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":160000,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Souss-Massa-Drâa","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T01:37:18Z","updated\_at\_by\_admin":"2016-04-13T23:35:58Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-12-06","approval\_status":0,"city":"Mejillones","commissioning\_on":null,"companion":"532 MW Coal-Hybrid Power Plant","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"praveen.kathpal@aes.com","contact\_info\_visible":false,"contact\_name":"Praveen H. Kathpal","contact\_phone":" (703) 682-6690","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Chile","created\_at":"2013-12-04T01:54:09Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Cochrane facility being developed by AES Gener, will incorporate AES Energy Storage’s Advanced Reserves product. The advanced lithium-ion battery modules for the project will be supplied by GS Yuasa, and the battery cells will be supplied by Lithium Energy Japan (a joint venture between GS Yuasa and Mitsubishi). The Grid Services division of Parker-Hannifin will provide power conversion and system-level services. The battery energy storage systems in combination with the energy produced by the Cochrane generating station will provide responsive, reliable power in the Northern Grid.","developer":"AES Gener & AES Energy Storage","electronics\_provider":"Mistubishi Corporation","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Equity","funding\_source\_2":"Private/Third Party Equity","funding\_source\_3":"","funding\_source\_details\_1":"AES Gener","funding\_source\_details\_2":"Mitsubishi","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":904,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/904/0000017852\_img2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/904/thumb\_0000017852\_img2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/904/partner\_0000017852\_img2.jpg"}},"integrator\_company":"Parker Hannifin Corporation","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-23.088591,"longitude":-70.411558,"master\_project\_id":null,"name":"Cochrane Thermal Power Station Storage System","om\_contractor":"","organization":null,"owner\_1":"AES Gener","owner\_2":"Mitsubishi","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":60.0,"ownership\_percentage\_2":40.0,"performance":"","primary\_reference":"http://www.mitsubishicorp.com/jp/en/pr/archive/2012/html/0000017852.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Primary Distribution","size\_kw":20000,"size\_kwh":0.316666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":19.0,"state":"Antofagasta","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-07-17T23:56:31Z","updated\_at\_by\_admin":"2014-07-17T23:56:31Z","updated\_by":null,"updated\_by\_email":null,"utility":"AES Gener","utility\_type":"Investor Owned","vendor\_company":"GS Yuasa & Lithium Energy Japan","zip":""}},{"project":{"announcement\_on":"2022-12-02","approval\_status":1,"city":"Okinawa","commissioning\_on":"2022-02-01","companion":"four diesel generators and two wind-power generators","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"JBartell@strategen.com","contact\_info\_visible":false,"contact\_name":"Keisuke Murakami","contact\_phone":"4802484634","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-12-04T17:57:58Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Okinawa Electric Power Co. (9511) will set up a battery storage system on Japan’s southernmost island to handle extra capacity generated by solar power projects.\r\nThe device is needed because the electricity grid on the island of Okinawa is expected to reach its maximum ability to accept solar energy, the Ministry of Economy, Trade and Industry said today in a statement. Applications to build solar farms with 300 kilowatts of capacity or bigger could reach 57 megawatts as early as this month, METI said.","developer":"","electronics\_provider":"Fuji Electric","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":905,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/905/150609\_01.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/905/thumb\_150609\_01.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/905/partner\_150609\_01.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":26.3344266,"longitude":127.8055832,"master\_project\_id":null,"name":"Okinawa Battery System","om\_contractor":"","organization":"Strategen Consulting","owner\_1":"Okinawa Electric Power Company","owner\_2":"","owner\_type":"3","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.hitachi-chem.co.jp/english/information/2015/n\_150609.html","primary\_reference1":"","projected\_lifetime":"17.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1500,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Okinawa","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-01T00:06:31Z","updated\_at\_by\_admin":"2014-10-22T17:39:29Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Okinawa Electric Power Company","utility\_type":"Investor Owned","vendor\_company":"Hitachi","zip":""}},{"project":{"announcement\_on":"2022-06-27","approval\_status":0,"city":"El Hierro","commissioning\_on":"2022-06-27","companion":"Wind","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"cmorales@goronadelviento.es","contact\_info\_visible":false,"contact\_name":"Cristina Morales Clavijo","contact\_phone":"+34922552438","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":112000000.0,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-12-04T22:28:52Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"El Hierro, the smallest of the Canary islands, commissioned an open loop pumped hydro plant specifically designed to supplement the islands wind turbines. The system will be made up of two reservoirs of water, a wind farm, a hydroelectric plant, a pumping station and a diesel powered facility (already in existence). The lower reservoir will have a capacity of up to 150,000 cubic meters of water, while the upper reservoir, which is a natural volcanic caldera, will be able to store up to 556,000 cubic meters. The five turbine wind farm will have installed capacity of 11.5 MW; the hydroelectric plant, with four Pelton turbines will have installed capacity of 11.3 MW and the pumping plant 6 MW. The Llanos Blancos plant has installed capacity of 12.7 MW.\r\n\r\nRead the 6/27/14 release: http://goo.gl/qBP9qu","developer":"Gorona del Viento","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":47950000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Spanish Government’s Institute for Diversification and Energy Saving","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":907,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/907/dc51adde-86c4-4526-8588-27bd84841080685\_845\_169\_0\_0\_0.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/907/thumb\_dc51adde-86c4-4526-8588-27bd84841080685\_845\_169\_0\_0\_0.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/907/partner\_dc51adde-86c4-4526-8588-27bd84841080685\_845\_169\_0\_0\_0.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":27.795065,"longitude":-17.923562,"master\_project\_id":null,"name":"El Hierro Hydro-Wind Plant","om\_contractor":"","organization":null,"owner\_1":"Endesa","owner\_2":"Canary Island Council","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":30.0,"ownership\_percentage\_2":60.0,"performance":"","primary\_reference":"http://www.goronadelviento.es/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Primary Distribution","size\_kw":11300,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Canary Islands","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:30:49Z","updated\_at\_by\_admin":"2014-07-30T14:35:26Z","updated\_by":null,"updated\_by\_email":null,"utility":"Red Eléctrica de España","utility\_type":"Public Owned","vendor\_company":"Andritz Hydro, Flowserve","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Jackson ","commissioning\_on":"2022-08-01","companion":"Customer side of the meter remotely controlled by utility.","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"gallaway@federatedREA.coop","contact\_info\_visible":true,"contact\_name":"Chris Gallaway","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-12-04T22:44:40Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"4.6 kW/11.8 kWh Silent Power storage unit installed at utility office building for demand charge reduction and backup power.\r\n\r\n \r\nThis project is part of the National Rural Electric Cooperative Association/Cooperative Research Network- Distributed Energy Storage Research Project","developer":"","electronics\_provider":"Silent Power Inc.","energy\_management\_software\_provider":"Silent Power Inc.","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":908,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/908/silentpower.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/908/thumb\_silentpower.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/908/partner\_silentpower.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"MISO","latitude":43.6346107,"longitude":-94.9952283,"master\_project\_id":null,"name":"NRECA/CRN - Distributed Energy Storage Research Project (Federated)","om\_contractor":"","organization":"","owner\_1":"Federated Rural Electric","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"https://www.smartgrid.gov/files/NRECA\_DOE\_Energy\_Storage.pdf","primary\_reference":"http://www.nreca.coop/wp-content/uploads/2014/07/TS\_SGDP\_Energy\_Storage\_June\_2014.pdf","primary\_reference1":"http://www.brainerddispatch.com/content/silent-power-goes-dark","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"NRECA ","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":5,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Minnesota","status":"Operational","street\_address":"77100 US Highway 71","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-21T21:18:25Z","updated\_at\_by\_admin":"2016-09-21T21:18:24Z","updated\_by":null,"updated\_by\_email":null,"utility":"Federated Rural Electric","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"GS-Yuasa","zip":"56143"}},{"project":{"announcement\_on":"2022-12-04","approval\_status":0,"city":"Charlotte","commissioning\_on":null,"companion":"Customer side of the meter remotely controlled by 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input.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":909,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/909/Duke\_SilentPwr.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/909/thumb\_Duke\_SilentPwr.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/909/partner\_Duke\_SilentPwr.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":35.0535496,"longitude":-80.8211696,"master\_project\_id":null,"name":"Duke Energy- Residential","om\_contractor":"","organization":null,"owner\_1":"Utility","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.silentpwr.com","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Residential (Reliability)","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":6,"size\_kwh":1.83333333333333,"size\_kwh\_hours":1,"size\_kwh\_minutes":50.0,"state":"North Carolina","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-05-21T07:12:37Z","updated\_at\_by\_admin":"2013-12-06T20:32:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"Duke Energy","utility\_type":"Investor Owned","vendor\_company":"","zip":"28277"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Litchfield","commissioning\_on":"2022-08-01","companion":"Customer side of the meter remotely controlled by utility.","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"tmergen@meeker.coop","contact\_info\_visible":false,"contact\_name":"Tim Mergen","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-12-04T22:48:14Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This Silent Power system uses one 4.6 kW/11.8 kWh Silent Power storage unit, which has been installed at the utility office building for demand charge reduction and backup power.\r\n\r\nThis project is part of the National Rural Electric Cooperative Association/Cooperative Research Network- Distributed Energy Storage Research Project","developer":"","electronics\_provider":"Silent Power Inc.","energy\_management\_software\_provider":"Silent Power Inc.","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":910,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/910/silentpower.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/910/thumb\_silentpower.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/910/partner\_silentpower.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"MISO","latitude":45.1385702,"longitude":-94.5289455,"master\_project\_id":null,"name":"NRECA/CRN - Distributed Energy Storage Research Project (Meeker)","om\_contractor":"","organization":"","owner\_1":"Meeker Cooperative Light and Power 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(Reliability)","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":64,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Minnesota","status":"Operational","street\_address":"6800 Electric Drive, PO Box 330","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-21T21:10:49Z","updated\_at\_by\_admin":"2016-09-21T21:10:48Z","updated\_by":null,"updated\_by\_email":null,"utility":"Rural Electric Cooperative","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"GS-Yuasa","zip":"55373"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Brainerd 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costing more than the savings it provided. It has since been decommissioned.","primary\_reference":"http://www.bpu.org","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":5,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Minnesota","status":"De-Commissioned","street\_address":"8027 Highland Scenic Rd","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-12T21:28:17Z","updated\_at\_by\_admin":"2014-08-12T21:28:17Z","updated\_by":null,"updated\_by\_email":null,"utility":"Brainerd Public Utilities","utility\_type":"Public Owned","vendor\_company":"Silent Power Inc.","zip":"56401"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Skhodnenskaya ","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@roel.ru","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Russia","created\_at":"2013-12-05T05:01:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Skhodnenskaya SHPP is a hydropower plant that is a part of the Moscow canal in the north-west of Moscow, one of the electric power plants on the canal.\r\n\r\nThe power plant was built in 1939 according to the diversion scheme, using the elevation difference between the Khimki Reservoir and the Shodnya River.\r\n\r\nPressure structures of the hydropower plant form the Khimki Reservoir with the area of 4 sq.km.\r\n\r\nThe main source of water for the pressure reservoir are five pump stations of the canal with the aggregate capacity of 101 MW and the consumption of 350 mln kW▪h of electric power per year with the average daily consumption of about 72 sq. m./s. The power plant along with the pump stations is actually a pump storage complex — the emergency and peak backup power in the Moscow electric power system.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":914,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/914/800px-Skhodnenskaya\_Hydroelectric\_station\_on\_Moscow\_Canal\_00.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/914/thumb\_800px-Skhodnenskaya\_Hydroelectric\_station\_on\_Moscow\_Canal\_00.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/914/partner\_800px-Skhodnenskaya\_Hydroelectric\_station\_on\_Moscow\_Canal\_00.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":55.850657,"longitude":37.43984,"master\_project\_id":null,"name":"Skhodnenskaya Hydro Plant","om\_contractor":"","organization":null,"owner\_1":"Unknown","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.russiagogreen.ru/en/res/detail.php?ID=1648","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":30000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Moscow","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-09-05T16:02:28Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Perucac","commissioning\_on":"2022-09-23","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Elektroproject","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Serbia","created\_at":"2013-12-05T05:34:17Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The energy system of Serbia has one specific plant, a pumped storage hydro power plant Bajina Basta. While operating with the generator, it is practically a hydro power plant with all relevant advantages-characteristics. While operating with pumps, it has a very rigid characteristics. The level of use of pump-turbine is 0.73, which defines this plant as a consumer. Water inflow in the upper storage reservoir is insignificant in comparison with the pumped quantities of water. These reasons cause a rational use of the plant in terms of its maximum engagement in operating with generator within the shortest possible time.\r\n\r\nhttp://www.eps.rs/Eng/Article.aspx?lista=Sitemap&id=71\r\n\r\nhttp://globalenergyobservatory.org/geoid/44122","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":916,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/916/bajinabasta\_131206.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/916/thumb\_bajinabasta\_131206.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/916/partner\_bajinabasta\_131206.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":43.95559,"longitude":19.45006,"master\_project\_id":null,"name":"Bajina Basta Reversible Hydro Power Plant","om\_contractor":"","organization":null,"owner\_1":"Elektroprivreda Srbije (EPS)","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Production: 501 GWh ","primary\_reference":"http://www.eps.rs/Eng/Article.aspx?lista=Sitemap&id=71","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":614000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Zlatibor","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:30:34Z","updated\_at\_by\_admin":"2013-12-05T05:38:55Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Toshiba","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Prague","commissioning\_on":"2021-12-09","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ipp@ipp.cas.cz","contact\_info\_visible":false,"contact\_name":"ipp","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Czech Republic","created\_at":"2013-12-05T20:59:34Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The flywheel system was required as an onsite power supply for fusion pulse experiments, which require a high amount of energy that was unavailable on the grid in Prague. \r\n\r\nThe fusion equipment (COMPASS-D tokamak) was previously used in UKAEA, United Kingdom. The equipment required electrical input power of 50 MW for pulse duration for about 2-3 seconds during operation. Such power was accessible in Culham Laboratory directly from the 33kV grid. \r\n\r\nHowever, only 1 MW power is available from the 22kV grid at the campus of the Academy of Sciences in Prague, where IPP Prague is located. Therefore, several solutions to provide the necessary input power were considered. Installation of two flywheel generators was chosen as a solution. They provide the necessary power (70 MW, 100 MJ) as well as a reasonable redundancy in case of flywheel system failure. 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The name and technical details of each flywheel is as follows:\r\n \r\nEZ2, built in 1973, has a nominal apparent power of 167 MVA, a power factor of 0.93, a resulting active power at nominal values of 155 MW, and a pulse duration of 9.7 sec.\r\n\r\nEZ3, built in 1977, has a nominal apparent power of 144 MVA, a power factor of 0.86, a resulting active power at nominal values of 124 MW, and a pulse duration of 4.4 sec.\r\n\r\nEZ4, built in 1987, has a nominal apparent power of 220 MVA, a power factor of 0.49, a resulting active power at nominal values of 108 MW, and a pulse duration of 6.7 sec.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":918,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/918/standard\_full.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/918/thumb\_standard\_full.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/918/partner\_standard\_full.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.2632698,"longitude":11.671654,"master\_project\_id":null,"name":"Max Planck Institute ASDEX-Upgrade Pulsed Power Supply System","om\_contractor":"","organization":"","owner\_1":"Max Planck Institute for Plasma Physics, EURATOM Association","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.ipp.mpg.de/ippcms/de/pr/forschung/asdex/index","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"Plasma Physics","research\_institution":"Max-Planck-Gesellschaft","research\_institution\_link":"http://www.ipp.mpg.de/2285/en","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":387000,"size\_kwh":0.00283333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.17,"state":"Bavaria","status":"Operational","street\_address":"Boltzmaanstraße 2\t","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-10-25T00:14:15Z","updated\_at\_by\_admin":"2014-07-03T16:02:35Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"85748 "}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Morón de la Frontera","commissioning\_on":"2022-11-01","companion":"","construction\_on":"2022-11-01","contact\_city":"","contact\_country":"","contact\_email":"ezequiel@solarpaces.org","contact\_info\_visible":false,"contact\_name":"Ezequiel Ferrer","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Ecolaire España","contractor\_2":"","contractor\_3":"","cost\_CAPEX":434000000.0,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-12-05T21:54:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Arenales parabolic trough power plant near the city of Morón de la Frontera in Andalusia, Spain, parabolic mirrors concentrate solar radiation onto an absorber pipe, in which approximately 2,200 metric tons of Diphyl are circulating as a heat transfer fluid. With this heated medium and a heat exchanger, steam can be produced, which then as in a conventional power plant generates electricity using a steam turbine. A thermal salt storage facility means that electricity can still be generated after the sunset in summer months almost round the clock.\r\n\r\nWith an output of 50 MW, Arenales went on stream at the end of 2013 after a construction time of two years. It supplies around 50,000 Spanish households with environmentally friendly electricity. The building contractor was Ecolaire España, a subsidiary of the Spanish construction company OHL (Obrascón Huarte Lain) headquartered in Madrid.","developer":"RREEF Infrastructure, OHL Industrial","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":919,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/919/e0.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/919/thumb\_e0.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/919/partner\_e0.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.161774,"longitude":-5.544695,"master\_project\_id":null,"name":"Arenales CSP Plant","om\_contractor":"","organization":"","owner\_1":"RREEF Infrastructure","owner\_2":"OHL Industrial","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Electricity Generation: 166,000 MWh/yr (Estimated)","primary\_reference":"http://helioscsp.com/concentrated-solar-power-csp-plant-los-arenales-taken-into-operation/","primary\_reference1":"https://www.nrel.gov/csp/solarpaces/project\_detail.cfm/projectID=241","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":50000,"size\_kwh":7.0,"size\_kwh\_hours":7,"size\_kwh\_minutes":0.0,"state":"Seville","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T07:08:57Z","updated\_at\_by\_admin":"2014-07-03T21:37:04Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Ashalim","commissioning\_on":"2022-12-01","companion":"Substation","construction\_on":"2022-01-10","contact\_city":"","contact\_country":"","contact\_email":"patricia.malodemolina@abengoa.com","contact\_info\_visible":false,"contact\_name":"Patricia Malo de Molina","contact\_phone":"34 954937111","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Solel Boneh","contractor\_2":"Aberner Energia","contractor\_3":"Teymna Gestion de Contratos","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Israel","created\_at":"2013-12-05T21:57:40Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"BrightSource Energy is partnering with General Electric (GE) and NOY Infrastructure & Energy Investment Fund to build the 121 MW Ashalim Solar Thermal Power Station in Israel’s Negev desert. GE is responsible for the engineering, the procurement and the construction (EPC) of the solar power station, with BrightSource providing the advanced solar field technology. \r\n\r\nThe BrightSource-GE-NOY Megalim project is one of three projects selected under Israel’s Ashalim 250 megawatt total solar tender. It will be located on Plot B and feature BrightSource’s concentrating solar power (CSP) tower technology. More than 50,000 computer-controlled heliostats, or mirrors, that track the sun on two axes and reflect sunlight onto a boiler on top of a 250-meter tower. Construction is underway and the facility is scheduled to be completed in late 2017. When operational, the Ashalim Solar Thermal Power Station will help Israel achieve its goal of having 10 percent of its electricity production from renewable energy sources by 2020.","developer":"Abengoa Solar, Shikun & Binui Renewable Energy ","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":920,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/920/al16\_12\_29\_7045.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/920/thumb\_al16\_12\_29\_7045.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/920/partner\_al16\_12\_29\_7045.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":30.964245,"longitude":34.699674,"master\_project\_id":null,"name":"Ashalim CSP Plant","om\_contractor":"Nea Solar O&M Ltd., Shikun & Binui Renewable Energy ","organization":"","owner\_1":"Abengoa Solar, Shikun & Binui Renewable Energy 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Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":121000,"size\_kwh":4.5,"size\_kwh\_hours":4,"size\_kwh\_minutes":30.0,"state":"Ramat Hovav","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T05:18:22Z","updated\_at\_by\_admin":"2015-09-29T21:40:41Z","updated\_by":null,"updated\_by\_email":null,"utility":"Israel Electric Corporation","utility\_type":"Federally Owned","vendor\_company":"Abengoa Solar","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Keahole 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Block\r\nTurbine Capacity (Gross):\t 2.0 MW\r\nTurbine Capacity (Net):\t 2.0 MW\r\nOutput Type:\tSteam Rankine\r\nCooling Method:\tWet cooling\r\n","developer":"Keahole Solar Power, Sopogy","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":921,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/921/Layout.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/921/thumb\_Layout.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/921/partner\_Layout.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":19.7267618,"longitude":-156.0618602,"master\_project\_id":null,"name":"Holaniku at Keahole 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Cargelligo","commissioning\_on":"2022-05-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"JBartell@strategen.com","contact\_info\_visible":false,"contact\_name":"Jake Bartell","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Betchel Power Corporation","contractor\_2":"Graphite Energy","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2013-12-05T22:18:14Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"GSPL bought back the 3MW facility at Lake Cargelligo, NSW, from Graphite Energy Pty Ltd on 1st September, 2016.\r\nCompleted in 2009, this plant was the first built by Lloyd Energy Systems (now GSPL) using the GSP Technology. It was later sold to Graphite Energy who used it as an R&D site.\r\nGSPL proposes to use the site for the development of a hybrid plant consisting of 3MW of its concentrated solar power (CSP) technology and 5MW of photovoltaics.\r\n\r\nThis plant serves as a demonstration of technology rather than a commercial plant.\r\n\r\n","developer":"Lloyd Energy Systems Pty Ltd","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":5000000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"AEST Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":922,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/922/Lake-Cargelligo2-1-768x463.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/922/thumb\_Lake-Cargelligo2-1-768x463.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/922/partner\_Lake-Cargelligo2-1-768x463.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-33.2983593,"longitude":146.3739716,"master\_project\_id":null,"name":"Lake Cargelligo Solar Tower","om\_contractor":"","organization":"Strategen Consulting","owner\_1":"Graphite Energy","owner\_2":"","owner\_type":"3","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://gsplicensing.com.au/the-lake-cargelligo-project/","primary\_reference1":"http://www.nrel.gov/csp/solarpaces/project\_detail.cfm/projectID=261","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":3000,"size\_kwh":24.0,"size\_kwh\_hours":24,"size\_kwh\_minutes":0.0,"state":"New South Wales","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Heat Thermal Storage","technology\_type\_l1":"Heat Thermal Storage","technology\_type\_l2":"Heat Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-11-28T16:57:44Z","updated\_at\_by\_admin":"2014-04-28T16:08:17Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Pofadder","commissioning\_on":"2022-08-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"patricia.malodemolina@abengoa.com","contact\_info\_visible":false,"contact\_name":"Patricia Malo de Molina","contact\_phone":"34 954937111","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":880000000.0,"cost\_OPEX":null,"country":"South Africa","created\_at":"2013-12-05T22:30:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Abengoa has been selected by the Department of Energy (DOE) of South Africa to develop Xina Solar One, a 100 MW parabolic trough plant with a five-hour thermal energy storage system using molten salts. This project will form the largest solar complex in Africa together with Abengoa’s plant KaXu Solar One that is currently under construction in the country. Xina Solar One was awarded to Abengoa in the third round of renewable energy projects organized by the Department of Energy of South Africa.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":923,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-29.12952,"longitude":19.3936,"master\_project\_id":null,"name":"Xina Solar One Power Plant","om\_contractor":"","organization":"","owner\_1":"Abengoa Solar","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.abengoasolar.com/web/en/plantas\_solares/plantas\_propias/sudafrica/#seccion\_3","primary\_reference1":"https://www.mottmac.com/releases/xina-solar-one-csp-plant-completes-first-month-of-operation-south-africa","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100000,"size\_kwh":5.5,"size\_kwh\_hours":5,"size\_kwh\_minutes":30.0,"state":"Northern Cape","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T06:12:49Z","updated\_at\_by\_admin":"2014-08-11T15:06:40Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Stuttgart","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"w.muench@enbw.com","contact\_info\_visible":false,"contact\_name":"Dr. Wolfram Münch","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-12-06T23:48:09Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The principle is simple: with the help of an electrolyser the test facility produces hydrogen from water and electricity from renewable energy sources. This then powers emission-free fuel cell cars. In the conversion process wind electricity could be stored in this way in the future – which relieves the electrical grid if too much energy is produced in strong winds.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":" Federal Ministry of Transportation","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":924,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/924/hydro.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/924/thumb\_hydro.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/924/partner\_hydro.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.7754181,"longitude":9.1817588,"master\_project\_id":null,"name":"EnBW Stuttgart Hydrogen Testing Facility","om\_contractor":"","organization":"EnBW","owner\_1":"EnBW","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Round trip efficiency 80%","primary\_reference":"http://fuelcellsworks.com/news/2013/03/29/inauguration-of-hydrogen-fueling-station-in-stuttgart/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Transportation Services","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":400,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Stuttgart","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Hydrogen Storage","technology\_type\_l1":"Hydrogen Storage","technology\_type\_l2":"Hydrogen Storage","technology\_type\_l3":"Hydrogen Storage","updated\_at":"2018-01-05T04:27:37Z","updated\_at\_by\_admin":"2014-09-10T16:31:30Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"EnBW","utility\_type":"Investor Owned","vendor\_company":"Linde AG, Hydrogenics","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Schwenningen","commissioning\_on":"2022-01-19","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Germany","contact\_email":"f.stoelzle@ng-o.com","contact\_info\_visible":false,"contact\_name":"Franz Stölzle","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-12-07T01:27:59Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project focuses on the development and implementation of a pilot plant that uses lithium-ion battery systems for energy storage in the network of EnBW ODR. The project's aim is to improve the integration of photo-voltaic systems, and thus inprove system stability in the EnBW ODR-network. The project incorporates smart grid integration. \r\n\r\nThe joint co-operation between Varta Microbattery GmbH and EnBW ODR will combine the core competencies of each company.VARTA Microbattery brings extensive knowledge and expertise in batteries and has provided a battery management system and inverter. EnBW ODR brings extensive specialized knowledge in network infrastructure.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":925,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.930813,"longitude":10.106166,"master\_project\_id":null,"name":"Intelligentes Netz Energie Speicher System (INESS)","om\_contractor":"","organization":null,"owner\_1":"EnBW ODR","owner\_2":"Varta Microbattery GmbH","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.energynet.de/2012/01/26/batteriespeicher-zur-erhohung-der-netzstabilitat-in-betrieb-genommen/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":27,"size\_kwh":2.33333333333333,"size\_kwh\_hours":2,"size\_kwh\_minutes":20.0,"state":"Neuler","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-17T22:39:58Z","updated\_at\_by\_admin":"2016-05-17T22:39:58Z","updated\_by":null,"updated\_by\_email":null,"utility":"EnBW ","utility\_type":"Investor Owned","vendor\_company":"Varta Microbattery GmbH, EnBW ODR","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Zwiefalten","commissioning\_on":"2022-09-04","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"Daniel Schöllhorn","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-12-07T02:03:52Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This is a pilot project developed by EnBW that is focused on dynamic, local voltage control using Lithium-Ion Battery technology. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":926,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":48.23081,"longitude":9.46354,"master\_project\_id":null,"name":"Netlab2 Sonderbuch","om\_contractor":"","organization":null,"owner\_1":"EnBW","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Round trip efficiency of 95% with response time < 1 second ","primary\_reference":"http://www.enbw.com/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Voltage Support","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":30,"size\_kwh":0.933333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":56.0,"state":"Zwiefalten","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-05-21T07:19:14Z","updated\_at\_by\_admin":"2013-12-24T20:03:06Z","updated\_by":null,"updated\_by\_email":null,"utility":"EnBW","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Esslingen","commissioning\_on":"2022-01-04","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Germany","contact\_email":"sven.lierzer@bridging-it.de","contact\_info\_visible":false,"contact\_name":"Sven Lierzer","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2013-12-07T02:21:29Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-09-30","desc":"The iZEUS project is a consumer-oriented integration of electric energy networks and transportation project, which is funded by the German Federal Ministry of Economics and Technology. In collaboration with EnBW Energie Baden-Württemberg AG (consortium leader), partners include Adam Opel AG, ads-tec GmbH, Daimler AG, Fraunhofer Gesellschaft, Karlsruhe Institute of Technology - KIT, PTV Group, SAP AG and TWT GmbH Science and Innovation, BridgingIT GmbH, and Toyota Motor Europe.\r\n\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"German Federal Ministry of Economics and Technology","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":927,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.7433425,"longitude":9.3201122,"master\_project\_id":null,"name":"iZEUS – Intelligent Zero Emission Urban System","om\_contractor":"","organization":null,"owner\_1":"EnBW AG","owner\_2":"ads-tec","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.izeus.de","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":150,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Esslingen","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-18T16:30:52Z","updated\_at\_by\_admin":"2016-05-18T16:30:52Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Sønderborg","commissioning\_on":null,"companion":"","construction\_on":"2022-02-01","contact\_city":"DK 6440 Augustenborg","contact\_country":"Denmark","contact\_email":"info@godevelopment.eu","contact\_info\_visible":true,"contact\_name":"","contact\_phone":"-45 20334170","contact\_state":"","contact\_street\_address":"Stavensbølgade 12","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Denmark","created\_at":"2013-12-07T21:28:24Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Countries like Denmark have only few hilly areas suitable or available for pumped hydro storage. This new form of pumped hydro storage system is based on an underground \r\nstorage reservoir, where the water is enclosed in a membrane with up to 25 meters of soil on top.\r\n\r\nThe overlaying soil gives the necessary pressure to run a pump/turbine and store large amount of electrical energy, corresponding to the pressure created by the level difference in the well-known pumped storage system.\r\n\r\nThe demonstration plant measures 50 x 50 meters and the average pumping head is 1 meter. Thus, it contains a total of 2 500 m3 water. The plant is covered by a 3-meter soil layer.\r\n\r\nGiven the chosen dimensions, the membrane can store 34 kWh. It may not sound like much, but if the energy membrane is scaled by a factor 10 in all three dimensions, the stored amount of energy will reach 200 MWh which equals 8 hours of energy consumption by 50 000 single-family houses.\r\n\r\nThe purpose of the demonstration plant is to test the geotechnical conditions and to prepare a mathematical model for the pumped storage. Furthermore, the project is to uncover the challenges and possibilities in storing energy in an underground pumped storage, in both environmental and technical as well as in economic terms.\r\n\r\nThe next step – a pilot plant sized 200 x 200 meters – will be based on the experiences from this demonstration plant.\r\n\r\nhttp://godevelopment.dk/wp-content/uploads/2011/12/Energy-membrane\_PPT\_211211.pdf","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":928,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/928/Capture.PNG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/928/thumb\_Capture.PNG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/928/partner\_Capture.PNG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":54.92273,"longitude":9.6794619,"master\_project\_id":null,"name":"GO Development Pumped Hydro Demonstration 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Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":6,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Nybøl","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Closed-loop Pumped Hydro Storage","technology\_type\_l1":"Closed-loop Pumped Hydro Storage","technology\_type\_l2":"Closed-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-08T23:30:25Z","updated\_at\_by\_admin":"2014-08-08T23:30:25Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Livorno","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"daniela.dirosa@enelfoundation.org","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-12-07T21:50:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"At Enel’s research facility in Livorno, three different energy storage systems are being tested: lithium ion batteries, vanadium redox flow batteries and sodium-nickel chloride \"ZEBRA\" (Zero Emission Battery Research Activity) batteries.\r\n\r\nThe key performance factors being investigated are:\r\n\r\n- Response and inversion time \r\n- Round trip efficiency \r\n- Real vs nominal capacity \r\n- Performances decay","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":929,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":43.548473,"longitude":10.3105674,"master\_project\_id":"929","name":"Enel Livorno Test Facility: 10 kW Vanadium Redox Flow","om\_contractor":"","organization":null,"owner\_1":"Cellstrom (Gildemeister Energy Solutions)","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.enel.com/en-GB/media/news/enel-leader-in-electricity-storage/p/090027d981d15e62","primary\_reference1":null,"projected\_lifetime":"1.0","rdd\_status":"Yes","research\_desc":"","research\_institution":"Enel","research\_institution\_link":"http://www.enel.com/en-GB/innovation/research\_development/","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Voltage 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","commissioning\_on":"2022-02-20","companion":"","construction\_on":"2022-11-01","contact\_city":"","contact\_country":"","contact\_email":"takenori.kobayashi@toshiba.co.jp","contact\_info\_visible":false,"contact\_name":"Takenori Kobayashi","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2013-12-09T17:15:12Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Tohoku-Electric Power Co Inc announced Feb 20, 2015, that it has started commercial operation of a large-size storage batter system installed at Nishi-Sendai Transformer Station in Akiu-machi, Taihaku-ku, Sendai City, Miyagi Prefecture, Japan.\r\n\r\nIt is a lithium-ion (Li-ion) rechargeable battery system with a capacity of 20,000kWh and output of 20,000kW (40,000kW for a short period of time). It was introduced as a countermeasure against frequency fluctuation caused by the introduction of solar power generation facilities, etc, and Tohoku-Electric Power will check its effects.\r\n\r\nThe project was selected as the \"Urgent Verification Project for Large-scale Storage Battery System in Fiscal 2012,\" for which New Energy Promotion Council (general incorporated association) called for proposals from the public. And Tohoku-Electric Power has been installing the system since November 2013. 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Toshiba","om\_contractor":"","organization":"","owner\_1":"Tohoku Electric Power Company","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://techon.nikkeibp.co.jp/english/NEWS\_EN/20150223/405564/?ST=msbe","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":40000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Miyagi 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Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.silentpwr.com","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"United States Department of Energy","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Grid-Connected Residential (Reliability)","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":5,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Nevada","status":"Operational","street\_address":"6226 W Sahara 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\r\n\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":934,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/934/red2.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/934/thumb\_red2.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/934/partner\_red2.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-39.0556253,"longitude":174.0752278,"master\_project\_id":null,"name":"Powerco's Redflow Battery 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(Reliability)","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":3,"size\_kwh":2.66666666666667,"size\_kwh\_hours":2,"size\_kwh\_minutes":40.0,"state":"Taranaki","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-11-07T19:18:08Z","updated\_at\_by\_admin":"2014-11-07T19:18:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"Powerco","utility\_type":"Public 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Redflow now uses Zinc Bromine Redox Flow battery technology. \r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":935,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-39.9364973,"longitude":175.568863,"master\_project\_id":null,"name":"Powerco's Lead Acid Battery System (Hunterville)","om\_contractor":"","organization":null,"owner\_1":"Powerco","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.redflow.com/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":5,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Rangitikei","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-01-21T17:03:14Z","updated\_at\_by\_admin":"2014-01-21T17:03:14Z","updated\_by":null,"updated\_by\_email":null,"utility":"Powerco","utility\_type":"Public Owned","vendor\_company":"Redflow","zip":""}},{"project":{"announcement\_on":"2021-12-11","approval\_status":1,"city":"Milton Keynes","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United Kingdom","contact\_email":"bgodfrey@westernpower.co.uk","contact\_info\_visible":false,"contact\_name":"Ben Godfrey","contact\_phone":"44 1332 827447","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2013-12-11T19:19:42Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The system is to be used in Western Powers distribution substation located in Milton Keynes. \r\n\r\nFive 50kW (100kWh) Sodium Nickel Chloride Durathon batteries were supplied by GE. These have been installed to investigate using energy storage to defer costly network reinforcement and evaluate using a number of smaller batteries distributed across a network, rather than a single unit at a single location.","developer":"","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":939,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/939/KWh\_series.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/939/thumb\_KWh\_series.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/939/partner\_KWh\_series.jpg"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":52.0406224,"longitude":-0.7594171,"master\_project\_id":null,"name":"WPD Falcon Project, GE Durathon","om\_contractor":"Western Power Distribution","organization":"Western Power Distribution","owner\_1":"Western Power Distribution","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://geenergystorage.com/","primary\_reference1":"https://www.solarpowerportal.co.uk/news/western\_power\_distribution\_to\_use\_general\_electric\_energy\_storage\_systems","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"Transmission Congestion Relief","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":250,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Buckinghamshire","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-29T01:53:14Z","updated\_at\_by\_admin":"2014-11-07T20:57:14Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Western Power Distribution","utility\_type":"Investor Owned","vendor\_company":"GE Energy Storage","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Santa Ana","commissioning\_on":null,"companion":"","construction\_on":"2022-04-14","contact\_city":"","contact\_country":"","contact\_email":"dnasitka@discoverycube.org","contact\_info\_visible":false,"contact\_name":"Dan Nasitka ","contact\_phone":"(951) 805-4174 ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-12-11T19:30:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Southern California Edison procured a Princeton Power Systems Battery Energy Storage System (“BESS”) for a field demonstration to be sited at the Discovery Cube (formerly the Discovery Science Center). This BESS includes a 100 kW, 500 kWh GE sodium nickel chloride battery. The Discovery Cube (formerly Discovery Science Center) is a medium-sized commercial customer that will use the BESS in a permanent load shifting application to reduce the peak loading (and bill) of the customer. Installation is expected on 20 April 14, 2022 with full commissioning by May 1, 2014. \r\n\r\nThis is General Electric’s largest grid-scale application of its sodium-nickel-chloride Durathon battery. As part of California’s permanent load shift program, the array is meant to shift 10% to 20% of the building’s electrical load from expensive peak times to cheaper, off-peak use, while also providing power when the grid goes down. It is one of the first deployments of battery technology aimed at such a large-scale shifting of power in a behind-the-meter setting.\r\n","developer":"Southern California Edison","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":941,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/941/KWh\_series.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/941/thumb\_KWh\_series.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/941/partner\_KWh\_series.jpg"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.7702538,"longitude":-117.8678641,"master\_project\_id":null,"name":"Discovery Cube (formerly Discovery Science Center) Durathon Battery - Southern California Edison","om\_contractor":"","organization":"Discovery Cube","owner\_1":"Southern California Edison, Discovery Cube","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.businesswire.com/news/home/20131029006428/en/California%E2%80%99s-Discovery-Science-Center-Selects-GE-Energy","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"2500 N Main St","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-18T22:03:33Z","updated\_at\_by\_admin":"2015-12-23T19:20:36Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"GE Energy Storage","zip":"92705"}},{"project":{"announcement\_on":"2021-12-11","approval\_status":1,"city":"Rochester","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"BSchmitz@Aristapower.com","contact\_info\_visible":false,"contact\_name":"Bill Schmitz","contact\_phone":"585-243-4040","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-12-11T19:32:14Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The customer is using the system primarily for behind the meter.\r\n\r\nBeing a fully integrated turnkey product, Durathon Battery Energy Storage Systems are highly efficient and scalable – from 100 kWh to multi MWh – and offer energy storage ranging from two to six hours. With accurate response times, the Durathon Battery Energy Storage System is a safe option that integrate seamlessly into any electric grid system. Designed to communicate with standard energy management system software, each Durathon Battery module easily integrates into any pre-existing, system-wide controller software.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":942,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/942/KWh\_series.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/942/thumb\_KWh\_series.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/942/partner\_KWh\_series.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":43.191445,"longitude":-77.660869,"master\_project\_id":null,"name":"Arista Durathon Battery Project","om\_contractor":"","organization":"Arista Power","owner\_1":"Arista Power","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://geenergystorage.com/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"New York","status":"Operational","street\_address":"1999 Mt. 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With accurate response times, the Durathon Battery Energy Storage System is a safe option that integrates seamlessly into any electric grid system. Designed to communicate with standard energy management system software, each Durathon Battery module easily integrates into any pre-existing, system-wide controller software","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":943,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/943/29palms.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/943/thumb\_29palms.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/943/partner\_29palms.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.8302961,"longitude":-116.5452921,"master\_project\_id":null,"name":"29 Palms Durathon Battery Project","om\_contractor":"","organization":"PDE Inc.","owner\_1":"PDE Inc.","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.desertsun.com/story/tech/science/energy/2014/03/29/twentynine-palms-co-generation-power-plant/7069857/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"On-Site Power","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-30T06:51:02Z","updated\_at\_by\_admin":"2015-03-16T18:00:06Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"GE Energy Storage","zip":""}},{"project":{"announcement\_on":"2022-06-01","approval\_status":1,"city":"Zhangbei","commissioning\_on":"2021-12-25","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"rcascone@nexant.com; jim.stover@pdenergy.com","contact\_info\_visible":false,"contact\_name":"Ronald Cascone","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"China CEPRI Sci & Tech Co., Ltd. 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Prudent Energy’s patented VRB-ESS® has been recognized as an ideal energy storage technology for wind power management and integration, due to the VRB® system’s automated ability to match power output precisely with demand, within milliseconds, in very large quantities, for almost countless times each day.\r\n\r\nThis project demonstrates how advanced energy storage technologies help to integrate renewable energy into power networks to ensure grid stability. The VRB-ESS® is proving itself as a fast and deep-cycling rechargeable fuel cell technology of almost unlimited life – with the ability to operate at high altitude and extreme weather conditions (down to -40°C). Prudent’s VRB-ESS® maintains full reactive energy control and integrates seamlessly into CEPRI’s control center. The success of this project has led to the ordering of addition Prudent Energy systems in China. 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KIER seeks to test and deploy the most promising advanced energy storage and related technologies. Prudent Energy’s patented VRB-ESS® is recognized as an ideal solution for renewable energy management and integration. \r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"South Korean Government","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":946,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/946/Capture.PNG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/946/thumb\_Capture.PNG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/946/partner\_Capture.PNG"}},"integrator\_company":"Newell Korea","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.4996213,"longitude":126.5311884,"master\_project\_id":null,"name":"KIER/Juju Island Vanadium Redox Battery Project","om\_contractor":"","organization":"Korea Institute of Energy Research","owner\_1":"Newell Korea","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.pdenergy.com/pdfs/KIERProject-FactSheet060212.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Juju","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-19T01:50:11Z","updated\_at\_by\_admin":"2014-07-30T16:30:34Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Prudent Energy","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Cherokee County","commissioning\_on":"2022-05-24","companion":"","construction\_on":"2022-01-04","contact\_city":"","contact\_country":"","contact\_email":"tvainfo@tva.gov","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2013-12-14T20:59:00Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Hiwassee Dam is a concrete gravity overflow dam 307 feet (94 m) high and 1,376 feet (419 m) long, and has a generating capacity of 185,000 kilowatts. The dam's spillway is controlled by seven radial gates, which, along with four regulating conduits at the bottom of the dam, give the dam a total maximum discharge of 112,000 cubic feet per second (3,200 m3/s). Hiwassee Lake stretches along the river for approximately 22 miles (35 km) to the town of Murphy, North Carolina, and has 180 miles (290 km) of shoreline, a storage capacity of 434,000 acre·ft (535,000 dam3) and 205,590 acre·ft (253,590 dam3) of flood storage. The reservoir's operating level varies by roughly 38 feet (12 m) in a typical year.\r\n\r\nDuring the 1950s, TVA experimented with the idea of \"pumped storage\" at Hiwassee Dam. There it employed an energy-generating turbine that was run in reverse during low-demand hours to pump water below the dam into the upper reservoir. This integration of pump and turbine was the first of its kind in the United States; further, at the time it was the largest and most powerful in the world. The unit was built by Allis-Chalmers Company. The \"pump-turbine\" at Hiwassee is designated a \"National Historic Mechanical Engineering Landmark\" by the American Society of Mechanical Engineers (ASME)\r\n\r\nhttp://files.asme.org/asmeorg/Communities/History/Landmarks/5567.pdf\r\n\r\nhttp://en.wikipedia.org/wiki/Hiwassee\_Dam","developer":"Tennessee Valley Authority","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":952,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/952/220px-Hiwassee\_Dam.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/952/thumb\_220px-Hiwassee\_Dam.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/952/partner\_220px-Hiwassee\_Dam.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":35.1134803,"longitude":-84.059029,"master\_project\_id":null,"name":"Hiwassee Dam","om\_contractor":"","organization":null,"owner\_1":"Tennessee Valley Authority","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.tva.gov/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":185000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"North Carolina","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:30:16Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Allis-Chalmers Company","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Tirol","commissioning\_on":"2022-01-01","companion":"Austrian power grid or in the Central European grid.","construction\_on":"2022-01-01","contact\_city":"Innsbruck","contact\_country":"Austria","contact\_email":"office@tiwag.at; wolfgang.richter@tugraz.at","contact\_info\_visible":false,"contact\_name":"; Wolfgang Richter","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2013-12-15T00:03:05Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Kühtai Pumped Hydro Station is part of the Sellrain-Silz power plant group. This group consists of the Finstertal reservoir which is the upper reservoir of the Kühtai Pumped storage hydro power plant. The Kühtai pumped storage hydro power plant has the Längental reservoir as lower reservoir. This lower reservoir is at the same time the upper reservoir of the Sellrain-Silz High head hydropower schmen. Only the Kühtai power plant has pumping capabilities.\r\n \r\nSince the Längentals-reservoir is fed with fresh water the PSH Kühtai is an open loop PSH. The Sellrain-Silz power plant is only a high head hydropower scheme.\r\n\r\nThe Finstertal reservoir is located at an altitude of 2300 meters above sea level and has a capacity of 60 million m³. The dam's embankment is 149 meters high with a crest length of 650 meters, which contains 4.5 million m³ of rock.\r\n\r\nThe Finstertal reservoir sits at an altitude of 1900 meters above sea level on the southeastern shore of the Längental reservoir. The power plant uses a shaft power design, which means that the components are vertically arranged and the majority of the cylindrical power plant building is located underground. The building has a diameter of 30 meters and a depth of 82 meters. The plant contains two Francis turbines with pump and power generation abilities. Both turbines can process 66m ² of water per second.\r\n\r\nThe reservoir Längental, often referred to as cache Längental, is located 400 meters below Finstertal reservoir and acts as intermediate storage with 1/20th of Finstertal's storage capacity. There are 13 mountain streams that continuously supply the reservoir. Water can either be pumped back into the Finstertal reservoir via the Kühtai Pumped Hydro Station or the water can flow down stream for electricity production via the Silz power station.\r\n\r\nThe Silz power plant sits at an altitude of 643 meters above sea level. The power plant contains two Silz Pelton turbines which rotate at 500 revolutions per minute. 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It has 4 individual Francis turbines which will deliver up to 160 MW of power. One of the turbines can be used as a pump as well (38 MW), making this power plant a pumped storage type. The plant uses water from the Vacha Reservoir, and is part of the Dospat-Vacha Hydro Power Cascade.\r\n\r\nhttps://en.wikipedia.org/wiki/Orphey\_Hydroelectric\_Power\_Station","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":955,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/955/Capture.PNG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/955/thumb\_Capture.PNG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/955/partner\_Capture.PNG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.7429109,"longitude":24.3915387,"master\_project\_id":null,"name":"Orphey Hydro Power Plant","om\_contractor":"","organization":null,"owner\_1":"NEK EAD","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"115,789 MWh Annually","primary\_reference":"http://www.nek.bg/cgi?d=1434","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":160000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Devin","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:29:53Z","updated\_at\_by\_admin":"2014-07-02T22:35:12Z","updated\_by":null,"updated\_by\_email":null,"utility":"NEK EAD","utility\_type":"Federally Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"San José de Maipo","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Chile","created\_at":"2013-12-15T16:42:07Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The plant was rebuilt after the flood of the Colorado River in November 1987. \r\n\r\nUsing a Francis design, the turbines are capable of electrical production and can also be used for pumped storage, where a reservoir is filled by the turbine (acting as a pump) driven by the generator acting as a large electrical motor during periods of low power demand, and then reversed and used to generate power during peak demand. These pump storage reservoirs, etc. act as large energy storage sources to store \"excess\" electrical energy in the form of water in elevated reservoirs. This is one of only a few ways that temporary excess electrical capacity can be stored for later utilization.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":956,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/956/img6187.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/956/thumb\_img6187.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/956/partner\_img6187.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":-33.665194,"longitude":-70.086873,"master\_project\_id":null,"name":"Auxiliar Maitenes Hydro Power Plant","om\_contractor":"","organization":null,"owner\_1":"AES Gener S.A","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.gener.cl/AESGenerWebNeo/index.aspx?channel=6187","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":30800,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Región Metropolitana","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:29:45Z","updated\_at\_by\_admin":"2013-12-15T18:09:21Z","updated\_by":null,"updated\_by\_email":null,"utility":"AES Gener S.A","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Boulder City","commissioning\_on":"2022-12-01","companion":"","construction\_on":"2022-07-01","contact\_city":"","contact\_country":"","contact\_email":"inigo.berazaluce.minondo@acciona.es","contact\_info\_visible":false,"contact\_name":"Iñigo Berazaluce","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Lauren Engineering","contractor\_2":"","contractor\_3":"","cost\_CAPEX":625000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2013-12-18T19:13:02Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This R&D project was funded by the DOE for the development of know-how on the design of phase change in thermal storage. The project resulted in know-how in regards to system design and its components.\r\n\r\nThis project is separate from the commercial Nevada Solar One Power Station. \r\n\r\n","developer":"Acciona Energy","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":625000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"U.S. Department of Energy","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":958,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Acciona Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.800172,"longitude":-114.981259,"master\_project\_id":null,"name":"Nevada Solar One R&D Project - Acciona Energy","om\_contractor":"Acciona Energy","organization":"Acciona Energy","owner\_1":"Acciona Energy","owner\_2":"U.S. DOE","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.acciona-energia.com/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"NREL","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Nevada","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Heat Thermal Storage","technology\_type\_l1":"Heat Thermal Storage","technology\_type\_l2":"Heat Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-19T03:40:39Z","updated\_at\_by\_admin":"2014-06-16T21:30:58Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Acciona Energy","zip":""}},{"project":{"announcement\_on":"2022-07-23","approval\_status":1,"city":"Troia","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"c.gadaletacaldarola@arti.puglia.it, Massimo.bertoncini@eng.it, remy.denos@ec.europa.eu","contact\_info\_visible":false,"contact\_name":"Carlo Gadaleta Caldarola, Dr. Massimo Bertoncini, Remy Denos","contact\_phone":"+39 335 1038042","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-12-18T22:34:10Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The INGRID project will combine the recent advances in Smart Grids and hydrogen-based energy storage to match energy supply and demand and optimize the electricity generated by intermittent Renewable Energy Sources while ensuring security and stability of the power distribution network\r\n\r\nThe consortium will design, build, deploy and operate a 39 MWh energy storage facility using McPhy hydrogen-based solid state storage and Hydrogenics electrolysis technology and fuel cell power systems in the Puglia region in Italy, where over 3.500 MW of solar, wind, and biomass are already installed. The hydrogen energy storage installation, with more than 1 ton of safely stored hydrogen (the largest ever built), including a novel fast responding 1.2 MW hydrogen generator, will be fully controlled by advanced smart grid solutions provided by Engineering and will provide effective and smart balancing support for the local grid managed by Enel Distribuzione. Several potential value streams for the generated carbon-neutral hydrogen will be investigated.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"ENERGY programme of the 7th FP for RTD - project INGRID, contract 296012","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":959,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/959/Capture.PNG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/959/thumb\_Capture.PNG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/959/partner\_Capture.PNG"}},"integrator\_company":"BFP","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.3597802,"longitude":15.3081141,"master\_project\_id":null,"name":"INGRID Hydrogen Demonstration Project","om\_contractor":"","organization":"","owner\_1":"INGRID Consortium","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Round-trip Efficiency (up to 50-60%) – actually 35% (70% for WE, 50% for FC)","primary\_reference":"http://www.ingridproject.eu/","primary\_reference1":"http://www.fuelcelltoday.com/news-archive/2012/july/ingrid-project-to-launch-12-mw-electrolyser-with-1-ton-of-storage-for-smart-grid-balancing-in-italy","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"Engineering Ingegneria Informatica (Italy), Fundación Tecnalia Research & Innovation (Spain), and Ricerca sul sistema Energetico (Italy), ARTI - Regional Agency for Technology and Innovation (Italy), BFP (Italy)","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Transportation 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McPhy","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Rustenburg","commissioning\_on":"2021-12-08","companion":"","construction\_on":"2022-12-04","contact\_city":"Port Elizabeth","contact\_country":"South Africa","contact\_email":"alexhofmeyr@gmail.com","contact\_info\_visible":true,"contact\_name":"Alex Hofmeyr","contact\_phone":"+27832874070","contact\_state":"Eastern Cape","contact\_street\_address":"3 Millard Crescent, Summerstrand","contact\_zip":"6019","contractor\_1":"Kestrel Renewable Energy","contractor\_2":"","contractor\_3":"","cost\_CAPEX":60000.0,"cost\_OPEX":null,"country":"South Africa","created\_at":"2013-12-19T06:48:39Z","created\_by\_id":176,"debt\_investor":"","decommissioning\_on":null,"desc":"The project incorporated 48 x 250W solar panels on frames tracking the sun angle, 24 x 2V 1660Ah battery cells, 4 x MPPT controllers, and 2 x 10kW inverters","developer":"Kestrel Renewable Energy","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":960,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/960/IMG-20131206-00054.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/960/thumb\_IMG-20131206-00054.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/960/partner\_IMG-20131206-00054.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-25.6544483,"longitude":27.255854,"master\_project\_id":null,"name":"Rustenburg VRLA Project","om\_contractor":"","organization":null,"owner\_1":"EBJ Mining 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2012, the project entered into service and became Cape Verde’s first rural micro grid with 100% renewable energy generation. This project was carried out within the framework of the “Energy Facility” ACP-EU program. Permanent electricity access had been strongly requested by the local stakeholders and community of the village to cover basic energy needs such as lighting, communication, community services and ice production for fish conservation.\r\n\r\nWithin the same framework, the system has been implemented in February 2014 up to 39 kWp installed.\r\n\r\nThe objective of the project was the electrification of the village of Monte Trigo (600 people) in Santo Antão Island, with a Multiuser Solar micro-Grid (MSG).\r\n\r\nThe project was implemented in 2011, and is currently in the post commissioning follow-up period. A key aspect of the project has been to ensure the long-term sustainability of the electricity service. In addition to the description of the plant and the operation and management scheme, this article underlines the importance of the Energy Daily Allowance (EDA) concept from social, technical and economic perspectives. In conclusion the article intends to highlight the validity of both the technical solution and management model.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":961,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/961/monte\_trigo\_2.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/961/thumb\_monte\_trigo\_2.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/961/partner\_monte\_trigo\_2.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":17.029107,"longitude":-25.321638,"master\_project\_id":null,"name":"Santo Antão Solar Micro Grid","om\_contractor":"","organization":null,"owner\_1":"Municipality of Santo Antâo","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.ecowrex.org/document/implementation-pv-rural-micro-grid-island-santo-antao-cape-verde-individual-energy","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":28,"size\_kwh":15.4166666666667,"size\_kwh\_hours":15,"size\_kwh\_minutes":25.0,"state":"Santo Antão","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-05T20:06:29Z","updated\_at\_by\_admin":"2014-08-05T20:06:29Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Kadana","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"India","created\_at":"2013-12-20T00:57:53Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The facility has 4 units. The first unit was commissioned in 1990 and the last in 1998. It is operated by Gujarat State Electricity Corporation Limited (GSECL).\r\n\r\nhttp://www.waterpowermagazine.com/features/featurepicking-up-the-pace/","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":963,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":23.2895908,"longitude":73.8382306,"master\_project\_id":null,"name":"Kadana Hydroelectric Power Station","om\_contractor":"","organization":null,"owner\_1":"Gujarat State Electricity Corporation Limited (GSECL) ","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://globalenergyobservatory.org/geoid/3767","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":240000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Gujarat","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:29:37Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Gujarat State Electricity Corporation Limited (GSECL) ","utility\_type":"Federally Owned","vendor\_company":"BHEL","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Jayakwadi","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"India","created\_at":"2013-12-20T01:07:12Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Jayakwadi Dam houses a hydroelectric power plant with installed power generating capacity of 12 MW. The water used for power generation is pumped back to main reservoir using a pump house.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":964,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/964/220px-Jayakwadi\_Dam.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/964/thumb\_220px-Jayakwadi\_Dam.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/964/partner\_220px-Jayakwadi\_Dam.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":19.4779213,"longitude":75.3656299,"master\_project\_id":null,"name":"Poithan (Jayakwadi Dam) Hydro 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efficiency: ＞90%\r\nRunning mode: Interactive/Unattended\r\nCompleted near 1000 full cycles already","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":965,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/965/case3.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/965/thumb\_case3.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/965/partner\_case3.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":22.543099,"longitude":114.057868,"master\_project\_id":null,"name":"BYD 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Although BYD manufactures 1GW of solar panels annually, their role in this project was primarily providing energy storage batteries in arrays larger than a football field.\r\n\r\nRelying on the advanced Fe battery technology, BYD ESS technology uses a modular, flexible design and can be easily tailored to meet a diverse set of customer needs. Up to now, BYD has a lot of successful cases of battery storage solutions from KW sized to MW sized system at home and abroad. 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Up to now, BYD has a lot of successful cases of battery storage solutions from KW sized to MW sized system at home and abroad.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":967,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/967/case5.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/967/thumb\_case5.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/967/partner\_case5.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":22.543099,"longitude":114.057868,"master\_project\_id":null,"name":"Pingshan 1MW/1MWh ESS For State Grid Company","om\_contractor":"","organization":"BYD","owner\_1":"China State Grid Company","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"System Efficiency: 90%","primary\_reference":"http://www.byd.com/energy/reference\_ess.htm","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Shenzhen","status":"Operational","street\_address":"BYD Road","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-12T07:02:17Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"China State Grid Company","utility\_type":"Federally Owned","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Zhongsheng","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Michael.Liu@byd.com","contact\_info\_visible":false,"contact\_name":"Michael Liu","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-12-20T02:57:30Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Relying on the advanced Fe battery technology, BYD ESS technology uses a modular, flexible design and can be easily tailored to meet a diverse set of customer needs. Up to now, BYD has a lot of successful cases of battery storage solutions from KW sized to MW sized system at home and abroad.\r\n\r\nThe 100kW ESS is used in Nanjing Zhongsheng photoelectric new energy Co., LTD—National energy solar power research center, and cooperated on-grid PV station to the comprehensive test.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":968,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/968/case11.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/968/thumb\_case11.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/968/partner\_case11.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":32.0561216,"longitude":118.6254438,"master\_project\_id":null,"name":"Zhongsheng 100kW/60kWh ESS","om\_contractor":"","organization":"BYD","owner\_1":"Nanjing Zhongsheng Photoelectric New Energy Co.","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.bydenergy.com/BYDEnergy/pages\_en/product\_cn/zhongshengguangdian.htm","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":0.6,"size\_kwh\_hours":0,"size\_kwh\_minutes":36.0,"state":"Zhongsheng","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-19T04:21:01Z","updated\_at\_by\_admin":"2013-12-20T03:00:21Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Zhangbei","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Michael.Liu@byd.com","contact\_info\_visible":false,"contact\_name":"Michael Liu","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-12-20T03:01:52Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Relying on the advanced Fe battery technology, BYD ESS technology uses a modular, flexible design and can be easily tailored to meet a diverse set of customer needs. Up to now, BYD has a lot of successful cases of battery storage solutions from KW sized to MW sized system at home and abroad.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":969,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/969/case12.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/969/thumb\_case12.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/969/partner\_case12.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.2189189,"longitude":114.7378386,"master\_project\_id":null,"name":"Zhongdian Purui 100kW/400kWh ESS","om\_contractor":"","organization":"BYD","owner\_1":"China EPRI Purui Zhangbei Wind Generation Research Company Co.,Ltd","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.batterien-mueller.de/fileadmin/bilder-dokumente/Fenecon/2014-09-03-BYD-ESS-Brochure.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"Load Following (Tertiary Balancing)","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Zhangbei","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-19T04:21:24Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Shanghai Jiaotong University","commissioning\_on":"2022-04-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Michael.Liu@byd.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-12-20T03:05:33Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Relying on the advanced Fe battery technology, BYD ESS technology uses a modular, flexible design and can be easily tailored to meet a diverse set of customer needs. Up to now, BYD has a lot of successful cases of battery storage solutions from KW sized to MW sized system at home and abroad.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":970,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/970/case13.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/970/thumb\_case13.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/970/partner\_case13.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":31.202264,"longitude":121.435256,"master\_project\_id":null,"name":" 50kW/160KWh For Shanghai Jiaotong University","om\_contractor":"","organization":null,"owner\_1":"Shanghai Jiaotong University","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.byd.com/energy/reference\_ess.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Load Following (Tertiary Balancing)","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":50,"size\_kwh":3.2,"size\_kwh\_hours":3,"size\_kwh\_minutes":12.0,"state":"Shanghai","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-14T21:59:43Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Bern","commissioning\_on":"2022-11-01","companion":"","construction\_on":null,"contact\_city":"nicola.ravani@swissrenova.ch","contact\_country":"","contact\_email":"info@passivhaus-technik.info","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"+41 79 194 88 60","contact\_street\_address":"Nicola Ravani","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Switzerland","created\_at":"2013-12-20T03:19:47Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Relying on the advanced Fe battery technology, BYD ESS technology uses a modular, flexible design and can be easily tailored to meet a diverse set of customer needs. Up to now, BYD has a lot of successful cases of battery storage solutions from KW sized to MW sized system at home and abroad.\r\n\r\nThe ESS will store solar power from four one family houses and take part in the electricity market while storing peaking power. The managing software is provided via Ampard AG.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":971,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/971/Capture.PNG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/971/thumb\_Capture.PNG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/971/partner\_Capture.PNG"}},"integrator\_company":"Ampard AG","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.9479222,"longitude":7.4446085,"master\_project\_id":null,"name":"Passivhaus 50kW/130kWh ESS","om\_contractor":"","organization":null,"owner\_1":"Passivhaus Technik AG","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.byd.com","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":50,"size\_kwh":2.6,"size\_kwh\_hours":2,"size\_kwh\_minutes":36.0,"state":"Bern","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-14T21:59:39Z","updated\_at\_by\_admin":"2014-06-12T01:18:52Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Pingshan","commissioning\_on":"2022-04-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Michael.Liu@byd.com","contact\_info\_visible":false,"contact\_name":"Michael Liu","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-12-20T03:27:21Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In 2010, the Shanghai electric 100kW ESS was used for the Shanghai World Expo. After the World Expo, the system was carried back to BYD and now it is used for micro-grid research.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":972,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/972/case14\_\_1\_.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/972/thumb\_case14\_\_1\_.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/972/partner\_case14\_\_1\_.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":22.5866333,"longitude":113.9659946,"master\_project\_id":null,"name":"Shanghai Electric 100kW/80kWh ESS ","om\_contractor":"","organization":"BYD","owner\_1":"Shanghai Electric Power Co.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.bydenergy.com/BYDEnergy/pages\_en/product\_cn/shanghaidianli.htm","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Load Following (Tertiary Balancing)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":0.8,"size\_kwh\_hours":0,"size\_kwh\_minutes":48.0,"state":"Shenzhen","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-19T04:22:31Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Shanghai Electric Power Co.","utility\_type":"Federally Owned","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Ali","commissioning\_on":"2022-12-01","companion":"Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Michael.Liu@byd.com","contact\_info\_visible":false,"contact\_name":"Michael.Liu","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2013-12-20T03:29:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Relying on the advanced Fe battery technology, BYD ESS technology uses a modular, flexible design and can be easily tailored to meet a diverse set of customer needs. Up to now, BYD has a lot of successful cases of battery storage solutions from KW sized to MW sized system at home and abroad.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":973,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/973/Capture.PNG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/973/thumb\_Capture.PNG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/973/partner\_Capture.PNG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":32.501111,"longitude":80.105804,"master\_project\_id":null,"name":"Tibet Ali 2MW/5.32MWh Microgrid","om\_contractor":"","organization":"","owner\_1":"Longyuan Tibet New Energy Company","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.byd.com","primary\_reference1":"http://www.batterien-mueller.de/fileadmin/bilder-dokumente/Fenecon/2014-09-03-BYD-ESS-Brochure.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":2.66666666666667,"size\_kwh\_hours":2,"size\_kwh\_minutes":40.0,"state":"Tibet","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T19:06:15Z","updated\_at\_by\_admin":"2013-12-20T03:29:50Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Sicily","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-12-20T05:17:04Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The first unit came into operation in 1989. The plant utilises 4 reversible turbines. ","developer":"Enel","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":975,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":37.10085,"longitude":15.119678,"master\_project\_id":null,"name":"Anapo (Solarino) Pumped Storage Plant","om\_contractor":"","organization":null,"owner\_1":"Enel","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.rteknos.it/area\_clienti/pdf\_file/ismes/203.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":600000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Solarino","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:29:22Z","updated\_at\_by\_admin":"2013-12-20T20:30:33Z","updated\_by":null,"updated\_by\_email":null,"utility":"Enel","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Bargi","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-12-20T20:30:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The pumped power plant contains 2 reversible turbines that allow it to pump water back into its upper reservoir during off-peak times. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":977,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":44.1260632,"longitude":11.0588536,"master\_project\_id":null,"name":"Bargi Hydro Power Plant","om\_contractor":"","organization":null,"owner\_1":"Enel","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Production: 557,728 MWh","primary\_reference":"http://www.enel.com","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":330000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Emilia-romagna","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-10-22T17:30:36Z","updated\_at\_by\_admin":"2014-10-22T17:30:36Z","updated\_by":null,"updated\_by\_email":null,"utility":"Enel SpA","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Entracque","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"gerardo.orsini@enel.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-12-20T20:52:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Entracque Power Plant, also known as The Upper Gesso Plant, is a pumped-storage hydroelectric power station located in Valle Gesso just south of Entracque, Italy. The power station contains pump-generators for two co-located but hydraulically separated power schemes; the Chiotas-Piastra Plant and Rovina-Piastra Plant. Both plants use separate upper reservoirs but use Lago della Piastra as their common lower reservoir. To produce power, water is released from the upper reservoirs to the power station located at the lower reservoir. The pump-generators re-fill the reservoirs and the process repeats as needed. The Chiotas' upper reservoir, Lago del Chiotas, is located much higher in the valley and larger than Rovina's Lago della Rovina which affords it the ability to produce more electricity. The installed capacity of Chiotas is 1,184 MW with a hydraulic head (water drop in elevation) of 1,048 m (3,438 ft) while Rovina has an installed capacity of 133.67 MW and a head of 598 m (1,962 ft). Construction on the plant began in 1962 and operations started in 1982. ","developer":"Enel","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":978,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/978/220px-Entracque\_diga\_Chiotas1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/978/thumb\_220px-Entracque\_diga\_Chiotas1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/978/partner\_220px-Entracque\_diga\_Chiotas1.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":44.2439659,"longitude":7.3964073,"master\_project\_id":null,"name":"Rovina Hydro Power Plant (Entracque Pumped Storage)","om\_contractor":"","organization":null,"owner\_1":"Enel","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://en.wikipedia.org/wiki/Entracque\_Power\_Plant","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":134000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Cuneo","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:29:07Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Enel","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Scianica","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-12-20T20:58:43Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The central San Fiorano is a hydroelectric power generation and pumping owned by ENEL with a total capacity of 568 MW and an average annual production of 342 GWh . It is located in Scianica, in the territory of Joint Sellero, in the province of Brescia.\r\n\r\nEquipped with Pelton turbines is the hydroelectric plant Italian with the highest average difference between basin and turbine: 1403.80 meters (the minimum is 1361.50 m and the maximum is 1439.70 m)","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":979,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/979/240px-San\_fiorano\_sellero.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/979/thumb\_240px-San\_fiorano\_sellero.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/979/partner\_240px-San\_fiorano\_sellero.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":46.0551036,"longitude":10.3501475,"master\_project\_id":null,"name":"San Fiorano Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Enel","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Average annual production of 342 GWh","primary\_reference":"http://it.wikipedia.org/wiki/Centrale\_idroelettrica\_di\_San\_Fiorano","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":568000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Brescia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:28:59Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Enel","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Campotosto","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-12-20T21:06:28Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Providence is the first system of hydroelectric power stations built along the Vomano Valley , located upstream of the hydroelectric St. James.\r\n\r\nIt is a central cave that receives its water from the overlying Campotosto with a gallery of adduction of 1,102 m and a penstock of 240 m, the water is then returned to Lake Providence with a gallery of 683 m.\r\n\r\nIt is equipped with two groups turbine / alternator Francis horizontal axis and a vertical axis. The machines also allow the reverse pumping water from Lake Providence to the Campotosto with a flow rate maximum total of 32.5 m³ / s to form the reserves to be used in the period of increased consumption of electricity .","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":980,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/980/800px-CentraleIdroelettricaDiProvvidenza\_02.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/980/thumb\_800px-CentraleIdroelettricaDiProvvidenza\_02.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/980/partner\_800px-CentraleIdroelettricaDiProvvidenza\_02.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":42.5575092,"longitude":13.3690221,"master\_project\_id":null,"name":"Provvidenza Hydro Power Plant","om\_contractor":"","organization":null,"owner\_1":"Enel","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Production: 70.46 GWh","primary\_reference":"http://it.wikipedia.org/wiki/Centrale\_idroelettrica\_di\_Provvidenza","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":156000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Abruzzi","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-10-22T17:30:16Z","updated\_at\_by\_admin":"2014-10-22T17:30:16Z","updated\_by":null,"updated\_by\_email":null,"utility":"Enel","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Kalayaan","commissioning\_on":"2022-05-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"ELC Electroconsult SpA, Ansaldo, Sta Clara International Corp, John Holland Group","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Philippines","created\_at":"2013-12-20T23:03:08Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In Mar 2005, J-Power acquired 50% of the CBK hydro plants from IMPSA and Edison Mission Energy The other 50% is held by Sumitomo Corp. The Kalayaan site is 60km south of Manila. The first stage was commissioned on 28 Feb 2022 and EPDC did the feasibility study in Jan 1990 for Phase-II. A fifth set is now in design. There are two upper storage reservoirs and the lower reservoir is Laguna de Bay. Maximum static head is 289m. The reservoirs are connected by a 2.3km steel penstock.\r\n\r\nhttp://globalenergyobservatory.org/geoid/41706","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":981,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/981/kalayaan.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/981/thumb\_kalayaan.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/981/partner\_kalayaan.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":14.35,"longitude":121.5669444,"master\_project\_id":null,"name":"Caliraya-Botocan-Kalayaan (CBK) Hydro-Elecric Power Plant Project","om\_contractor":"","organization":null,"owner\_1":"Sumitomo Electric Industries, Ltd.","owner\_2":"Electric Power Development Co., Ltd.(J-Power)","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":50.0,"ownership\_percentage\_2":50.0,"performance":"","primary\_reference":"http://pippaonline.org/node/36","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":709000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Laguna","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:28:42Z","updated\_at\_by\_admin":"2013-12-20T23:04:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Sprâncenata","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Romania","contact\_email":"arges@hidroconstructia.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Romania","created\_at":"2013-12-23T01:00:32Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"At the Frunzaru node the storage lake length is 15 km with a width of 1 km and surface area of 1.280 ha. The left bank dike is 16,000 m long and the right bank is 19,223 m long. \r\n\r\nPumping station Pesta is installed on the right bank dike at km 8+200 with intake capabilities of up to 24 m/s, and in the left bank dike another pump station which can take over up to 4.3 m/s.","developer":"Hidroelectrica S.A.","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":985,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/985/400.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/985/thumb\_400.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/985/partner\_400.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":43.900408,"longitude":25.971661,"master\_project\_id":null,"name":"Frunzaru Reversible Pump Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Hidroelectrica 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Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":53000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Giurgiu","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro 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inc.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":988,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/988/DPP\_130\_DOE\_db.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/988/thumb\_DPP\_130\_DOE\_db.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/988/partner\_DPP\_130\_DOE\_db.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":36.4465346,"longitude":127.1191534,"master\_project\_id":null,"name":"Samyoung Vanadium Redox Flow Battery Project","om\_contractor":"","organization":null,"owner\_1":"Samyoung Machinery Co., 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large amount of renewable energy (wind and solar) into real-time dispatch of its power generation to meet electricity demand. To meet sustainable criteria for grid stability and reliability, the major utilities in Spain are looking into alternative storage projects, and especially pumped storage projects. Spain has one of the most dynamic markets for pumped storage in southern Europe with a total installed capacity of 5, 350 MW in operation against a total estimated potential of 13,000 MW. Spain is slated to construct additional projects in the coming decades. One government report on renewable energy plans for 2011-2020 estimates a target installed capacity of about 6,300 MW by 2015 and 8,800 MW by 2020. Iberdrola, Gas Natural Fenosa (GNF), and Endesa are the three main utilities that are expected to undertake these developments to fulfill the government objective.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":989,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":42.1429146,"longitude":-7.286868,"master\_project\_id":"","name":"Conso Hydroelectric Power Station","om\_contractor":"","organization":null,"owner\_1":"Iberdrola","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.iberdrola.es/webibd/gc/prod/en/doc/INFORMEANUAL.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":228000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Orense","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-02T06:03:42Z","updated\_at\_by\_admin":"2016-04-29T20:37:53Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Guijo De Granadilla","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"fcaller@iberdrola.es","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-12-23T16:56:10Z","created\_by\_id":133,"debt\_investor":"","decommissioning\_on":null,"desc":"Spain is facing many challenges trying to integrate a large amount of renewable energy (wind and solar) into real-time dispatch of its power generation to meet electricity demand. To meet sustainable criteria for grid stability and reliability, the major utilities in Spain are looking into alternative storage projects, and especially pumped storage projects. Spain has one of the most dynamic markets for pumped storage in southern Europe with a total installed capacity of 5, 350 MW in operation against a total estimated potential of 13,000 MW. Spain is slated to construct additional projects in the coming decades. One government report on renewable energy plans for 2011-2020 estimates a target installed capacity of about 6,300 MW by 2015 and 8,800 MW by 2020. Iberdrola, Gas Natural Fenosa (GNF), and Endesa are the three main utilities that are expected to undertake these developments to fulfill the government objective.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":990,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":40.195346,"longitude":-6.16329,"master\_project\_id":null,"name":"Gabriel Y Galan Hydroelectric Power Station","om\_contractor":"","organization":null,"owner\_1":"Iberdrola","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.iberdrola.com/webibd/corporativa/iberdrola?IDPAG=ENWEBCONLINLIBESPRODPOTINSTHID","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":111000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Extremadura","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:28:15Z","updated\_at\_by\_admin":"2013-12-23T17:21:19Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Gobantes","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"camillo.catarci@enel.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-12-23T16:56:11Z","created\_by\_id":133,"debt\_investor":"","decommissioning\_on":null,"desc":"Spain is facing many challenges trying to integrate a large amount of renewable energy (wind and solar) into real-time dispatch of its power generation to meet electricity demand. To meet sustainable criteria for grid stability and reliability, the major utilities in Spain are looking into alternative storage projects, and especially pumped storage projects. Spain has one of the most dynamic markets for pumped storage in southern Europe with a total installed capacity of 5, 350 MW in operation against a total estimated potential of 13,000 MW. Spain is slated to construct additional projects in the coming decades. One government report on renewable energy plans for 2011-2020 estimates a target installed capacity of about 6,300 MW by 2015 and 8,800 MW by 2020. Iberdrola, Gas Natural Fenosa (GNF), and Endesa are the three main utilities that are expected to undertake these developments to fulfill the government objective.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":991,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.95558,"longitude":-4.798108,"master\_project\_id":null,"name":"Gobantes Hydroelectric Power Station","om\_contractor":"","organization":null,"owner\_1":"Endesa","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"www.endesa.com","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":3600,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Andalucia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:28:07Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Guijo de Grandadilla","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"fcaller@iberdrola.es","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-12-23T16:56:13Z","created\_by\_id":133,"debt\_investor":"","decommissioning\_on":null,"desc":"Spain is facing many challenges trying to integrate a large amount of renewable energy (wind and solar) into real-time dispatch of its power generation to meet electricity demand. To meet sustainable criteria for grid stability and reliability, the major utilities in Spain are looking into alternative storage projects, and especially pumped storage projects. Spain has one of the most dynamic markets for pumped storage in southern Europe with a total installed capacity of 5, 350 MW in operation against a total estimated potential of 13,000 MW. Spain is slated to construct additional projects in the coming decades. One government report on renewable energy plans for 2011-2020 estimates a target installed capacity of about 6,300 MW by 2015 and 8,800 MW by 2020. Iberdrola, Gas Natural Fenosa (GNF), and Endesa are the three main utilities that are expected to undertake these developments to fulfill the government objective.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":992,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":40.195346,"longitude":-6.16329,"master\_project\_id":null,"name":"Guijo de Grandadilla Hydroelectric Power Station","om\_contractor":"","organization":null,"owner\_1":"Iberdrola","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.iberdrola.es/webibd/gc/prod/en/doc/INFORMEANUAL.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":54000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Extremadura","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:27:59Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Guillena","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"rafael.sanchez@endesa.es","contact\_info\_visible":false,"contact\_name":"Rafael Sánchez Durán","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-12-23T16:56:14Z","created\_by\_id":133,"debt\_investor":"","decommissioning\_on":null,"desc":"The hydraulic power Guildford is a pumping station. Such plants have a reversible operation, ie during periods of low energy demand can pump water to the upper reservoir at night when there is excess electricity production. Thus, during periods when it is necessary to produce, available water in the upper reservoir.\r\nWhen acting as a conventional hydraulic power, water drives turbines that generate the rotation of the alternator , and thus to generate electricity. Otherwise, the plant has a hydraulic pumps that send water to an upper reservoir for later use.\r\nIn this case, the hydroelectric plant uses Guildford Gergal reservoir to store water. Such plants can be of two types, turbine and pump or reversible turbine.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":993,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.5429955,"longitude":-6.0568552,"master\_project\_id":null,"name":"Guillena Hydroelectric Power Station","om\_contractor":"","organization":null,"owner\_1":"Endesa","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.endesaeduca.com/Endesa\_educa\_Ingles/conocenos/oferta\_actividades/ch-guillena","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":215000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Andalucia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:27:52Z","updated\_at\_by\_admin":"2014-07-30T20:25:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"Endesa","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Huesca","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"lnieto@awstruepower.com","contact\_info\_visible":false,"contact\_name":"luis alfonso nieto","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-12-23T16:56:16Z","created\_by\_id":133,"debt\_investor":"","decommissioning\_on":null,"desc":"A hydro plant with a capacity of 88.85 megawatts (MW) in the form of a reversible pumping station with three sets consisting of an alternator, a turbine and a pump. It can supply clean energy to more than 16,000 homes. It has two reservoirs to complete the pump-turbine circuit. The higher reservoir is a lake (the Lake of Ip) whose level has been raised through infilling with loose materials to a maximum height above foundations of 28m, a crown length of 235m and a spillway capacity of 87 m3/s. It has a capacity of 5.3 hm3 (Lake of Ip). The lower reservoir (the Canfranc counter-reservoir) has a capacity of 0.43 hm3. It has a 32.2-meter-high buttressed-wall dam located on the river Aragon.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":994,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/994/Ib\_n\_de\_Ip\_Hydroelectric\_Power\_Station.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/994/thumb\_Ib\_n\_de\_Ip\_Hydroelectric\_Power\_Station.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/994/partner\_Ib\_n\_de\_Ip\_Hydroelectric\_Power\_Station.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":42.7201458,"longitude":-0.4561336,"master\_project\_id":null,"name":"Ibón de Ip 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times of excess generation, low demand or low energy prices.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":995,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":42.580864,"longitude":0.694514,"master\_project\_id":null,"name":"Moralets-Llauset (Lleida/Huesca) Hydroelectric Power 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To meet sustainable criteria for grid stability and reliability, the major utilities in Spain are looking into alternative storage projects, and especially pumped storage projects. Spain has one of the most dynamic markets for pumped storage in southern Europe with a total installed capacity of 5,350 MW in operation against a total estimated potential of 13,000 MW. Spain is slated to construct additional projects in the coming decades. One government report on renewable energy plans for 2011-2020 estimates a target installed capacity of about 6,300 MW by 2015 and 8,800 MW by 2020. Iberdrola, Gas Natural Fenosa (GNF), and Endesa are the three main utilities that are expected to undertake these developments to fulfill the government objective.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":996,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.93753,"longitude":-5.780025,"master\_project\_id":null,"name":"Pintado Hydroelectric Power 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315 MW .It has reversibleturbines and two water reservoirs.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":997,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":42.310337,"longitude":-7.2346105,"master\_project\_id":null,"name":"Puente Bibey Hydroelectric Power 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There are two alternators and the pumping capacity is 114.5 MW viaurbines that are Francis, vertical and reversible. The reservoirs are used to supply water to the central area of Asturias (CADASA).","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":998,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":43.2504393,"longitude":-5.9832577,"master\_project\_id":null,"name":"Tanes Hydroelectric Power Station","om\_contractor":"","organization":null,"owner\_1":"Energias de Portugal (EDP)","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.hcenergia.com/en/about-us/generation/hydro-electric-plants/tanes","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":133000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Asturias","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:27:20Z","updated\_at\_by\_admin":"2014-01-22T20:41:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"Energias de Portugal (EDP)","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Torrejon","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"fcaller@iberdrola.es","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-12-23T16:56:23Z","created\_by\_id":133,"debt\_investor":"","decommissioning\_on":null,"desc":"Spain is facing many challenges trying to integrate a large amount of renewable energy (wind and solar) into real-time dispatch of its power generation to meet electricity demand. To meet sustainable criteria for grid stability and reliability, the major utilities in Spain are looking into alternative storage projects, and especially pumped storage projects. Spain has one of the most dynamic markets for pumped storage in southern Europe with a total installed capacity of 5, 350 MW in operation against a total estimated potential of 13,000 MW. Spain is slated to construct additional projects in the coming decades. One government report on renewable energy plans for 2011-2020 estimates a target installed capacity of about 6,300 MW by 2015 and 8,800 MW by 2020. Iberdrola, Gas Natural Fenosa (GNF), and Endesa are the three main utilities that are expected to undertake these developments to fulfill the government objective.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":999,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":40.1989768,"longitude":-3.8016321,"master\_project\_id":null,"name":"Torrejon Hydroelectric Power Station","om\_contractor":"","organization":null,"owner\_1":"Iberdrola","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.iberdrola.com/webibd/corporativa/iberdrola?IDPAG=ENWEBCONLINLIBESPRODPOTINSTHID","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":132000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Caceres","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:27:12Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Bielsa","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"fcaller@iberdrola.es","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-12-23T16:56:24Z","created\_by\_id":133,"debt\_investor":"","decommissioning\_on":null,"desc":"Spain is facing many challenges trying to integrate a large amount of renewable energy (wind and solar) into real-time dispatch of its power generation to meet electricity demand. To meet sustainable criteria for grid stability and reliability, the major utilities in Spain are looking into alternative storage projects, and especially pumped storage projects. Spain has one of the most dynamic markets for pumped storage in southern Europe with a total installed capacity of 5, 350 MW in operation against a total estimated potential of 13,000 MW. Spain is slated to construct additional projects in the coming decades. One government report on renewable energy plans for 2011-2020 estimates a target installed capacity of about 6,300 MW by 2015 and 8,800 MW by 2020. Iberdrola, Gas Natural Fenosa (GNF), and Endesa are the three main utilities that are expected to undertake these developments to fulfill the government objective.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1000,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":42.6334211,"longitude":0.218018,"master\_project\_id":null,"name":"Urdiceto Hydroelectric Power Station","om\_contractor":"","organization":null,"owner\_1":"Iberdrola","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.iberdrola.es/webibd/gc/prod/en/doc/INFORMEANUAL.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":7200,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Aragon","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:27:04Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Valdecanas","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"fcaller@iberdrola.es","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2013-12-23T16:56:26Z","created\_by\_id":133,"debt\_investor":"","decommissioning\_on":null,"desc":"Spain is facing many challenges trying to integrate a large amount of renewable energy (wind and solar) into real-time dispatch of its power generation to meet electricity demand. To meet sustainable criteria for grid stability and reliability, the major utilities in Spain are looking into alternative storage projects, and especially pumped storage projects. Spain has one of the most dynamic markets for pumped storage in southern Europe with a total installed capacity of 5, 350 MW in operation against a total estimated potential of 13,000 MW. Spain is slated to construct additional projects in the coming decades. One government report on renewable energy plans for 2011-2020 estimates a target installed capacity of about 6,300 MW by 2015 and 8,800 MW by 2020. Iberdrola, Gas Natural Fenosa (GNF), and Endesa are the three main utilities that are expected to undertake these developments to fulfill the government objective.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1001,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":40.2268415,"longitude":-2.3337187,"master\_project\_id":null,"name":"Valdencanas Hydroelectric Power Station","om\_contractor":"","organization":null,"owner\_1":"Iberdrola","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.iberdrola.com/webibd/corporativa/iberdrola?IDPAG=ENWEBCONLINLIBESPRODPOTINSTHID","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":225000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Castilla-la Mancha","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:26:55Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Riva del Garda","commissioning\_on":"2022-04-11","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"camillo.catarci@enel.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-12-23T16:56:28Z","created\_by\_id":133,"debt\_investor":"","decommissioning\_on":null,"desc":"Ponale Hydroelectric Power Plant is a pumped storage plant, located in city of Riva del Garda in the Italian province of Trentino, on River Ponale between Lake Ledro and Lake Garda. The station was built in 1928-1929 and underwent overhaul in 1998. The station is known by the world record in high-rise concrete pumping during the reconstruction in 1994. The achieved record was 532m.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1002,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":45.8885171,"longitude":10.8426602,"master\_project\_id":null,"name":"Ponale (Riva del Garda Ledro) Hydroelectric Power Station","om\_contractor":"","organization":null,"owner\_1":"Enel","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.enel.com","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":80000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Tretino","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-10-22T17:30:04Z","updated\_at\_by\_admin":"2014-10-22T17:30:04Z","updated\_by":null,"updated\_by\_email":null,"utility":"Enel ","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Lanzada","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"camillo.catarci@enel.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-12-24T19:20:57Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Pumped hydro was first used in Italy and Switzerland in the 1890's.  In essence, hydro pumped storage is electricity generated from the kinetic energy of falling water. This water is pumped into storage reservoirs using excess power during low demand periods and then released during high demand periods.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1005,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.2695803,"longitude":9.8720987,"master\_project\_id":null,"name":"Campo Moro Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Enel","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.enel.com","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":36500,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Lombardia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-10-22T17:29:52Z","updated\_at\_by\_admin":"2014-10-22T17:29:52Z","updated\_by":null,"updated\_by\_email":null,"utility":"Enel ","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Capriati Al Volturno","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"camillo.catarci@enel.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-12-24T19:20:59Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Pumped hydro was first used in Italy and Switzerland in the 1890's.  In essence, hydro pumped storage is electricity generated from the kinetic energy of falling water. 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This water is pumped into storage reservoirs using excess power during low demand periods and then released during high demand periods.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1007,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.0714347,"longitude":12.3411223,"master\_project\_id":null,"name":"Fadalto Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Enel","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Production: 344.8 GWh","primary\_reference":"http://www.enel.it/it-IT/impianti/mappa/dettaglio/fadalto-vittorio-veneto/p/090027d98192fab1","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":210000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Veneto","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-10-22T17:29:06Z","updated\_at\_by\_admin":"2014-10-22T17:29:06Z","updated\_by":null,"updated\_by\_email":null,"utility":"Enel ","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Gargnano","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"camillo.catarci@enel.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-12-24T19:22:43Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Pumped hydro was first used in Italy and Switzerland in the 1890's.  In essence, hydro pumped storage is electricity generated from the kinetic energy of falling water. 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This water is pumped into storage reservoirs using excess power during low demand periods and then released during high demand periods.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1010,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.5478079,"longitude":11.0070771,"master\_project\_id":null,"name":"Pracomune Hydro Power Station","om\_contractor":"","organization":null,"owner\_1":"Enel","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Annual Production: 70 GWh","primary\_reference":"http://www.enel.it/it-IT/impianti/mappa/dettaglio/pracomune-ultimo/p/090027d98192fa10","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":42000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Bolzano","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-10-22T17:28:34Z","updated\_at\_by\_admin":"2014-10-22T17:28:34Z","updated\_by":null,"updated\_by\_email":null,"utility":"Enel ","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Ovodda","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"camillo.catarci@enel.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2013-12-24T19:24:30Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Pumped hydro was first used in Italy and Switzerland in the 1890's.  In essence, hydro pumped storage is electricity generated from the kinetic energy of falling water. 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Although hydroelectric power was once a main source of energy, the ratio of hydroelectric to thermal power has been reversed since 1959. Hydroelectric power plants can quickly be adjusted, and this makes hydroelectricity ideal for the role of compensating for potential shortfalls to meet peak demand. Pumped storage hydroelectric power plants, which pump in water during low-demand evening hours and use it to generate power during peak hours, have become the mainstream of hydroelectric power generation in recent years in Japan.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1012,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":33.6037185,"longitude":133.6860033,"master\_project\_id":null,"name":"Ananaigawa Hydroelectric Power Station","om\_contractor":"","organization":null,"owner\_1":"Shikoku Electric Power Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.yonden.co.jp/english/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":13500,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Kōchi","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-08-14T22:25:38Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Shikoku Electric Power Company","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-05-24","approval\_status":2,"city":"Mayo","commissioning\_on":"2022-06-01","companion":"","construction\_on":"2022-01-01","contact\_city":"Belmullet","contact\_country":"Ireland","contact\_email":"Jim@OrganicPower.ie","contact\_info\_visible":true,"contact\_name":"James Nolan","contact\_phone":"+34607337457","contact\_state":"Mayo","contact\_street\_address":"main St.","contact\_zip":"Michale Walsh","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":800000000.0,"cost\_OPEX":430.0,"country":"Ireland","created\_at":"2013-12-27T17:53:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Glinsk Energy Storage Hub will accept a power flow of up to 1500 MW from wind farms for storage. The Storage Hub is now designed and ready to submit for planning to An Bord Pleanála after 3 years work. This power will be held in storage until peak demand periods occur during any given day and then exported to coincide with demand if the wind is not blowing. The PHES will be at least 75% efficient overall. The PHES scheme can deliver power at maximum output for 6 hours per day (or much longer at reduced output), corresponding to peak demand on the day in the UK and Ireland. \r\n\r\nThe flexible diversion of wind power into storage ensures maximum utility for the wind farms and permits over 2000 MW of wind to be connected to market using only 1500 MW of transmission cable.","developer":"Organic Power","electronics\_provider":"Siemens","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party 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market and will be the country’s first pumped storage power station.\r\n\r\nThe power plant, which is 60km east of Haifa, will be commissioned in 2018, and will increase the country’s installed power generation capacity by 2.5%.","developer":"Alstom","electronics\_provider":"Alstom","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1016,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":32.7940463,"longitude":34.989571,"master\_project\_id":null,"name":"Gilboa Pumped Storage Power 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deployed to create a robust Ancillary Services system which functions as a LESR (Limited Energy Storage Resource). These systems provide grid-scale including Regulation-Up, Regulation-Down, Spinning Reserves, VAR Support and Grid Inertia. The ARES Fast Response Ancillary Service technology bridges the power gap between large scale battery and flywheel installations and far larger pumped-storage hydro -- at a lower life-cycle cost than batteries, a higher energy-to-power ratio than flywheels and a greater efficiency and far faster ramp-rate than pumped-storage.\r\n \r\nThe ARES Ancillary Service facilities typically utilizes a single uphill track with a central queue of loaded shuttle-trains that travel up and down grade in response to an ISO (Independent System Operator) command to provide Reg-UP or Reg-Down frequency adjustment. In addition to its high charge / discharge efficiency of 86% it has extremely fast ramp-rate on the order of seconds to ramp to full power.","developer":"ARES Nevada","electronics\_provider":"ABB","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1017,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/1017/ARES\_Train\_4c.png","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/1017/thumb\_ARES\_Train\_4c.png"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/1017/partner\_ARES\_Train\_4c.png"}},"integrator\_company":"ARES, LLC","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":36.2082943,"longitude":-115.9839147,"master\_project\_id":null,"name":"Advanced Rail Energy Storage Nevada ","om\_contractor":"ARES, LLC","organization":null,"owner\_1":"ARES Nevada LLC","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"84% Round Trip","primary\_reference":"http://www.aresnorthamerica.com","primary\_reference1":null,"projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":50000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Nevada","status":"Under Construction","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Gravitational Storage","technology\_type\_l1":"Gravitational Storage","technology\_type\_l2":"Gravitational Storage","technology\_type\_l3":"Electro-mechanical","updated\_at":"2016-05-04T19:05:26Z","updated\_at\_by\_admin":"2016-05-04T19:05:26Z","updated\_by":null,"updated\_by\_email":null,"utility":"Valley Electric Association","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"ARES, LLC","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Jiangsu","commissioning\_on":"2022-02-25","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Michael.Liu@byd.com","contact\_info\_visible":false,"contact\_name":"Michael Liu","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-01-10T19:11:40Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Relying on the advanced Fe battery technology, BYD ESS technology uses a modular, flexible design and can be easily tailored to meet a diverse set of customer needs. Up to now, BYD has a lot of successful cases of battery storage solutions from KW sized to MW sized system at home and abroad.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1018,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":32.061707,"longitude":118.763232,"master\_project\_id":null,"name":"Jiangsu 100kW/400kWh ESS","om\_contractor":"","organization":"BYD","owner\_1":"JiangSu Electric Power","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"System efficiency: ＞90%","primary\_reference":"https://canalenergia-wp.s3-us-west-2.amazonaws.com/wp-content/uploads/2017/07/Workshop-BSP-BYD-Solar-Adalberto.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Jiangsu","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-19T04:32:27Z","updated\_at\_by\_admin":"2014-01-10T19:19:08Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Langfang","commissioning\_on":"2022-11-26","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Michael.Liu@byd.com","contact\_info\_visible":false,"contact\_name":"Michael Liu","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-01-10T19:11:42Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Relying on the advanced Fe battery technology, BYD ESS technology uses a modular, flexible design and can be easily tailored to meet a diverse set of customer needs. 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Up to now, BYD has a lot of successful cases of battery storage solutions from KW sized to MW sized system at home and abroad.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1020,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":40.824418,"longitude":114.887543,"master\_project\_id":null,"name":"Zhongdianpurui 100kW/400kWh ESS","om\_contractor":"","organization":"BYD","owner\_1":"China EPRI Science &amp; Technology ","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.byd.com","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":3.2,"size\_kwh\_hours":3,"size\_kwh\_minutes":12.0,"state":"Hebei","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-19T04:50:20Z","updated\_at\_by\_admin":"2014-01-10T19:20:16Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Pujiang","commissioning\_on":"2022-09-30","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Michael.Liu@byd.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-01-10T19:11:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Relying on the advanced Fe battery technology, BYD ESS technology uses a modular, flexible design and can be easily tailored to meet a diverse set of customer needs. Up to now, BYD has a lot of successful cases of battery storage solutions from KW sized to MW sized system at home and abroad.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1021,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":30.9982268,"longitude":121.4268487,"master\_project\_id":null,"name":"Shanghai Pujiang 50kW/160kWh ESS","om\_contractor":"","organization":null,"owner\_1":"Confidential","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.byd.com","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":50,"size\_kwh":3.16666666666667,"size\_kwh\_hours":3,"size\_kwh\_minutes":10.0,"state":"Shanghai","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-14T21:59:15Z","updated\_at\_by\_admin":"2014-08-07T15:29:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Chengdu","commissioning\_on":"2022-11-11","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Michael.Liu@byd.com","contact\_info\_visible":false,"contact\_name":"Michael Liu","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-01-10T19:11:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Relying on the advanced Fe battery technology, BYD ESS technology uses a modular, flexible design and can be easily tailored to meet a diverse set of customer needs. Up to now, BYD has a lot of successful cases of battery storage solutions from KW sized to MW sized system at home and abroad.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1022,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":30.572269,"longitude":104.066541,"master\_project\_id":null,"name":"Southwest Jiaotong University 100kW/100kWh ESS","om\_contractor":"","organization":"BYD","owner\_1":"Southwest Jiaotong University","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.byd.com","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Sichuan","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-19T05:40:34Z","updated\_at\_by\_admin":"2014-01-10T19:37:30Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Beijing","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Michael.Liu@byd.com","contact\_info\_visible":false,"contact\_name":"Michael Liu","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-01-10T19:11:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Relying on the advanced Fe battery technology, BYD ESS technology uses a modular, flexible design and can be easily tailored to meet a diverse set of customer needs. 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storage systems are being tested: lithium ion batteries, vanadium redox flow batteries and sodium-nickel chloride \"ZEBRA\" (Zero Emission Battery Research Activity) batteries.\r\n\r\nThe key performance factors being investigated are:\r\n\r\n- Response and inversion time \r\n- Round trip efficiency \r\n- Real vs nominal capacity \r\n- Performances decay","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1029,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":43.548473,"longitude":10.3105674,"master\_project\_id":"929","name":"Enel 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Up to now, BYD has a lot of successful cases of battery storage solutions from KW sized to MW sized system at home and abroad.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1030,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":28.228209,"longitude":112.938814,"master\_project\_id":null,"name":"Changsha 10MW/20MWh BESS","om\_contractor":"","organization":null,"owner\_1":"BYD","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.byd.com","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":10000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Hunan","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-14T21:58:38Z","updated\_at\_by\_admin":"2014-07-14T16:23:01Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Breukelen","commissioning\_on":null,"companion":"Solar","construction\_on":"2022-10-10","contact\_city":"Amsterdam","contact\_country":"Netherlands","contact\_email":"mark@mistergreen.nl","contact\_info\_visible":true,"contact\_name":"Mark Schreurs","contact\_phone":"643161375","contact\_state":"Noord-Holland","contact\_street\_address":"De Ruyterkade 128","contact\_zip":"1011 AC","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Netherlands","created\_at":"2014-01-11T18:25:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The market for electric vehicles (EV) is preparing for rapid growth in the coming years. All major car manufacturers have announced to launch an electric vehicle. The Dutch market is expected to expand to 15,000-20,000 EVs in 2013, and 1,000,000 EVs in 2025. The ambition of the Dutch government is to have 200,000 electric vehicles on the road by 2020, and a continued growth to a mature market of 1 million vehicles by 2025. For scaling up the number of electric vehicles, a charging infrastructure with 500 fast charging points is essential. \r\n\r\nHowever, anxiety regarding range and finding charging stations can be a major concern for EV drivers; this range anxiety can be alleviated with the availability of fast charging stations at central locations, where a car gets fully charged within 30 minutes. The availability of fast charging stations plays a major role in the acceptance by a broad group of consumers.\r\n\r\nAn important technical challenge related to electric vehicles is the effect of charging on the classic energy grid. Moreover, the classic energy grid is not suited for fast charging of EVs, as this is accompanied by very high peaks in energy demand. Innovative solutions should be developed to overcome this problem.\r\n\r\nMisterGreen aims at developing an important next step for electric transportation: sustainable fast charging stations next to Dutch highway gas stations, where electric cars get fully charged in 30 minutes using solar energy. MisterGreen aims at developing a smart-grid solution – the energy needed for fast-charging is available via energy storage buffer batteries. There will be no peak energy demands on the classic energy grid as these batteries serve as energy buffer. The storage buffer batteries are charged using solar panels. A lack of available solar power can be supplemented by power from the grid. \r\n\r\nMistergreen will realize and manage a nationwide network of fast charging stations at the best locations in the Netherlands. Concessions for twenty highway locations throughout the Netherlands have been obtained until 2027. The fast charging stations will be realized next to gas stations along the highway in the Netherlands.\r\n\r\nIntergrated solar panels for onsite electricity generation will charge the batteries of the charging station. Both the battery storage and grid power provide for fast charging the EV. The battery storage pack will serve as a load-balancing power source and has smart grid functionalities.\r\n\r\nAt these highway fast charging stations, drivers can fill up their car with sustainable solar energy in less than 30 minutes.\r\n\r\nHaarrijn, the largest petrol station in Europe located centrally in the Netherlands will be the first demonstration/pilot location of the EV fast charging station.\r\n\r\n\r\n\r\n","developer":"MisterGreen Products","electronics\_provider":"Alfen","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Equity","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1034,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1034/foto\_\_10\_\_\_1\_.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1034/thumb\_foto\_\_10\_\_\_1\_.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1034/partner\_foto\_\_10\_\_\_1\_.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":52.1710222,"longitude":5.001329,"master\_project\_id":null,"name":"Solar Powered Quick Charging EV's (Breukelen) - MisterGreen Products","om\_contractor":"Alfen","organization":"MisterGreen Products","owner\_1":"MisterGreen Electric Lease","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.mistergreen.nl","primary\_reference1":"","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"TU-Delft","research\_institution\_link":"","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"On-Site Power","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":50,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Utrecht","status":"Operational","street\_address":"Rijksweg A2 bij Breukelen","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-03-03T02:53:14Z","updated\_at\_by\_admin":"2014-01-18T17:53:40Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"Investor Owned","vendor\_company":"Alfen","zip":""}},{"project":{"announcement\_on":"2022-01-15","approval\_status":1,"city":"Phoenix","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Menomonee Falls ","contact\_country":"United States","contact\_email":"Ckuhl@zbbenergy.com","contact\_info\_visible":true,"contact\_name":"Chris Kuhl","contact\_phone":"262-253-9800","contact\_state":"Wisconsin","contact\_street\_address":"N93 W14475 Whittaker Way","contact\_zip":"53051","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-15T21:16:05Z","created\_by\_id":28,"debt\_investor":"","decommissioning\_on":null,"desc":"ZBB provided ZBB EnerStore® Zinc-bromide flow batteries and a 25 kW inverter to be integrated with PV (solar) and fast-charge electric vehicle charging while connected to the grid to provide a continuous supply of energy and optimize the interconnected resources. The company will be using the system to demonstrate and promote renewable energy technologies at a major sporting venue as part of a public awareness campaign, and will have this installation serve as a template for future large, commercial customer sites across their service region for integrated PV and EV charging system requirements.","developer":"","electronics\_provider":"ZBB Energy Corporation","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1035,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.4483771,"longitude":-112.0740373,"master\_project\_id":null,"name":"PV and EV Charging Systems at Sporting Venue ","om\_contractor":"","organization":null,"owner\_1":"Confidential","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.zbbenergy.com/products","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":25,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Arizona","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-11-07T19:23:25Z","updated\_at\_by\_admin":"2014-11-07T19:23:25Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"ZBB Energy Corporation","zip":""}},{"project":{"announcement\_on":"2022-05-02","approval\_status":1,"city":"Honolulu ","commissioning\_on":null,"companion":"Solar PV, Wind","construction\_on":null,"contact\_city":"Menomonee Falls","contact\_country":"United States","contact\_email":"ckuhl@zbbenergy.com","contact\_info\_visible":true,"contact\_name":"Chris Kuhl","contact\_phone":"262-253-9800","contact\_state":"Wisconsin","contact\_street\_address":"N93 W14475 Whittaker Way","contact\_zip":"53051","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-15T21:31:44Z","created\_by\_id":28,"debt\_investor":"","decommissioning\_on":null,"desc":"The ZBB EnerSystem™ includes a ZBB EnerSection® power and energy control center combined with a ZBB EnerStore® next generation proprietary flow battery system. The ZBB EnerSystem™ intelligently manages inputs of various energy sources on the base that include an existing photovoltaic (PV) solar power system and new wind turbines.","developer":"","electronics\_provider":"EnSync Energy (formerly ZBB Energy Corporation)","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1036,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1036/2013-01-10\_12-38-51\_620.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1036/thumb\_2013-01-10\_12-38-51\_620.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1036/partner\_2013-01-10\_12-38-51\_620.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":21.3069444,"longitude":-157.8583333,"master\_project\_id":null,"name":"Smart Power Infrastructure Demonstration for Energy Reliability and Security at the Joint Base Pearl Harbor Hickam (JBPHH) U.S. Military Base","om\_contractor":"","organization":"EnSync Energy (formerly ZBB Energy Corporation)","owner\_1":"US Navy","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://ensync.investorroom.com/2012-05-02-ZBB-Energy-to-Manage-Smart-Microgrid-Power-at-U-S-Military-Base-in-Pearl-Harbor-Hawaii-as-Part-of-Major-DoD-Energy-Security-Initiative","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":125,"size\_kwh":3.33333333333333,"size\_kwh\_hours":3,"size\_kwh\_minutes":20.0,"state":"Hawaii","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-17T07:42:26Z","updated\_at\_by\_admin":"2014-11-07T19:23:42Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Hawaiian Electric Company","utility\_type":"","vendor\_company":"EnSync Energy (formerly ZBB Energy Corporation)","zip":""}},{"project":{"announcement\_on":"2022-01-16","approval\_status":1,"city":"Ashburn","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Menomonee Falls","contact\_country":"United States","contact\_email":"ckuhl@zbbenergy.com","contact\_info\_visible":true,"contact\_name":"Chris Kuhl","contact\_phone":"262-253-9800","contact\_state":"Wisconsin","contact\_street\_address":"N93 W14475 Whittaker Way","contact\_zip":"53051","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-16T14:52:17Z","created\_by\_id":28,"debt\_investor":"","decommissioning\_on":null,"desc":"ZBB Energy Storage System provides uninterrupted power to DC loads at major data center. The system includes the ZBB EnerStore® flow battery and a ZBB EnerSection® power and control center with PV and wind inputs, along with a fixed 380v DC output for continuous power output while tied to the grid.","developer":"","electronics\_provider":"ZBB Energy Corporation","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1037,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.0437567,"longitude":-77.4874416,"master\_project\_id":null,"name":"VISA (Data Processing Center)","om\_contractor":"","organization":null,"owner\_1":"VISA","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.zbbenergy.com/products","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":25,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Virginia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-11-07T19:24:05Z","updated\_at\_by\_admin":"2014-11-07T19:24:05Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"ZBB Energy Corporation","zip":""}},{"project":{"announcement\_on":"2022-01-16","approval\_status":1,"city":"Tetiaroa","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Menomonee Falls","contact\_country":"United States","contact\_email":"ckuhl@zbbenergy.com","contact\_info\_visible":true,"contact\_name":"Chris Kuhl","contact\_phone":"262-253-9800","contact\_state":"Wisconsin","contact\_street\_address":"N93 W14475 Whittaker Way","contact\_zip":"53051","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"French Polynesia","created\_at":"2014-01-16T15:12:33Z","created\_by\_id":28,"debt\_investor":"","decommissioning\_on":null,"desc":"ZBB is teamed up with Pacific Beachcomber to provide a 2,000 kWh ZBB EnerStore® System,which includes (40) 50kWh Zinc Bromide Battery Modules, for the luxury eco-resort, The Brando on Tetiaroa in French Polynesia.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1038,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Pacific Beachcomber","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-16.9916652,"longitude":-149.5786408,"master\_project\_id":null,"name":"Tetiaroa Brando Resort","om\_contractor":"","organization":"","owner\_1":"The Brando Resort","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Remote Mini Grid; PV Stability; Genset Fuel Minimization","primary\_reference":"https://finance.yahoo.com/news/zbb-energy-signs-agreement-2-133000263.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Tahiti","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-11T06:40:40Z","updated\_at\_by\_admin":"2014-11-07T19:24:22Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"EnSync Energy Systems","zip":""}},{"project":{"announcement\_on":"2022-01-16","approval\_status":1,"city":"Moscow","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Menomonee Falls","contact\_country":"United States","contact\_email":"ckuhl@zbbenergy.com","contact\_info\_visible":true,"contact\_name":"Chris Kuhl","contact\_phone":"262-253-9800","contact\_state":"Wisconsin","contact\_street\_address":"N93 W14475 Whittaker Way","contact\_zip":"53051","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Russia","created\_at":"2014-01-16T15:22:29Z","created\_by\_id":28,"debt\_investor":"","decommissioning\_on":null,"desc":"ZBB Energy in a strategic relationship with BPC Engineering is providing a ZBB EnerSystem™, consisting of a ZBB EnerStore® flow battery and patented ZBB EnerSection® power and control center. ","developer":"","electronics\_provider":"ZBB Energy Corporation","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1039,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":55.755826,"longitude":37.6173,"master\_project\_id":null,"name":"BPC Energy","om\_contractor":"","organization":null,"owner\_1":"BPC Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Micro Grid; Smart Grid; Power Quality; Micro Turbine; Demand Response","primary\_reference":"http://www.zbbenergy.com/products","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Voltage Support","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":25,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Moscow","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-11-07T19:24:48Z","updated\_at\_by\_admin":"2014-11-07T19:24:48Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"ZBB Energy Corporation","zip":""}},{"project":{"announcement\_on":"2022-01-16","approval\_status":1,"city":"Ultimo","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Menomonee Falls","contact\_country":"United States","contact\_email":"ckuhl@zbbenergy.com","contact\_info\_visible":true,"contact\_name":"Chris Kuhl","contact\_phone":"262-253-9800","contact\_state":"Wisconsin","contact\_street\_address":"N93 W14475 Whittaker Way","contact\_zip":"53051","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2014-01-16T15:31:10Z","created\_by\_id":28,"debt\_investor":"","decommissioning\_on":null,"desc":"ZBB Energy is providing a grid Independent ZBB EnerSystem™ with its ZBB EnerStore® Zinc Bromide flow batteries to provide an integrated Microgrid Energy Management System to the University of Technology Sydney (UTS) to serve as a permanent power source, demonstration unit and learning platform in the newly constructed Broadway Building","developer":"","electronics\_provider":"ZBB Energy Corporation","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1040,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1040/Illinois\_Institution\_of\_Technology.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1040/thumb\_Illinois\_Institution\_of\_Technology.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1040/partner\_Illinois\_Institution\_of\_Technology.jpg"}},"integrator\_company":"Nilsen","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-33.8837333,"longitude":151.2020339,"master\_project\_id":null,"name":"UTS (University of Technology) Sydney","om\_contractor":"","organization":null,"owner\_1":"UTS","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Renewable Stability; Demand Response Integration","primary\_reference":"http://www.zbbenergy.com/products","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":25,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Sydney","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-11-07T19:25:03Z","updated\_at\_by\_admin":"2014-11-07T19:25:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"ZBB Energy Corporation","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Malaga","commissioning\_on":null,"companion":"100 kW Solar","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"rafael.sanchez@endesa.es","contact\_info\_visible":false,"contact\_name":"Rafael Sanchez","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2014-01-17T17:24:15Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"As part of the Smart City Malaga project, there is a block of power storage modules connected to a MV network as backup. This project aims to prove the benefits of power storage in the daily performance of the Network.","developer":"","electronics\_provider":"Ingeteam","energy\_management\_software\_provider":"Ingeteam","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1056,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1056/Capture.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1056/thumb\_Capture.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1056/partner\_Capture.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.721261,"longitude":-4.4212655,"master\_project\_id":null,"name":"Smart City Malaga (MT)","om\_contractor":"","organization":"Endesa","owner\_1":"Endesa","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.endesa.com/es/proyectos/a201712-almacenamiento-energetico-futuro-energia.html","primary\_reference1":"https://www.ingeteam.com/Portals/0/Catalogo/Sector/Documento/SSE\_1416\_Archivo\_cs22iptt01-a-pga-smart-city.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transmission Support","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":106,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Andalucia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-17T21:36:53Z","updated\_at\_by\_admin":"2014-08-04T14:49:07Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Endesa","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-01-17","approval\_status":2,"city":"Zaragoza","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"eduardo.mascarell@endesa.es","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2014-01-17T17:24:15Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This project promotes research, development and demonstration of rapid charging of electric vehicles including the integration of renewable energies and storage systems, and the study of the impact on the network.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1057,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.6841242,"longitude":-0.8828324,"master\_project\_id":null,"name":"Endesa: CRAVE","om\_contractor":"","organization":null,"owner\_1":"Endesa","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.aragondigital.es/noticia.asp?notid=109693","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"CIRCE Foundation, University of Zaragoza","research\_institution\_link":"http://circe.cps.unizar.es/circe/english/index.html","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":47,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Aragon","status":"Operational","street\_address":"University of Zaragoza, Campus Río Ebro, Calle M. Esquillor Gómez, 15","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-07-30T18:26:17Z","updated\_at\_by\_admin":"2014-07-30T18:22:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"Endesa","utility\_type":"Investor Owned","vendor\_company":"","zip":"50018"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Malaga","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"eduardo.mascarell@endesa.es","contact\_info\_visible":false,"contact\_name":"Eduardo Mascarell","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2014-01-17T17:24:16Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This innovative project aims to find new ways to integrate the electric vehicle in the system and broaden its possibilities. This pilot consists of modified electric vehicles that are able, not only to recharge by consuming power from the grid but also, to become a source of power or an electric storage unit. 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It consists of a series of tests performed in a controlled environment, designed to identify the effects caused on them by previous usage and their possible new uses.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1059,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.414669,"longitude":2.220793,"master\_project\_id":null,"name":"IREC B2G","om\_contractor":"","organization":null,"owner\_1":"Endesa","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.irec.cat/en/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"Catalonia Institute for Energy Research","research\_institution\_link":"http://www.irec.cat/en/","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":23,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Catalonia","status":"Operational","street\_address":"Jardins de les Dones de Negre, 1, 2ª pl.","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-07-30T18:44:05Z","updated\_at\_by\_admin":"2014-07-30T18:43:44Z","updated\_by":null,"updated\_by\_email":null,"utility":"Endesa","utility\_type":"Investor Owned","vendor\_company":"","zip":"08930"}},{"project":{"announcement\_on":"2022-12-01","approval\_status":2,"city":"Barcelona","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"eduardo.mascarell@endesa.es","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2014-01-17T17:24:18Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This project aims to allow better integration of renewable energy into the electric mobility system. The project can accomplish these goals by installing the battery module very close to charging points and on-site renewable generation.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1060,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.3850639,"longitude":2.1734035,"master\_project\_id":null,"name":"Endesa HQ B2G (Barcelona)","om\_contractor":"","organization":null,"owner\_1":"Endesa","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.endesa.com","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":20,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Catalonia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-07-30T18:28:15Z","updated\_at\_by\_admin":"2014-07-30T18:28:15Z","updated\_by":null,"updated\_by\_email":null,"utility":"Endesa","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-01-17","approval\_status":1,"city":"Woerden","commissioning\_on":null,"companion":"Solar","construction\_on":null,"contact\_city":"Amsterdam","contact\_country":"Netherlands","contact\_email":"mark@mistergreen.nl","contact\_info\_visible":true,"contact\_name":"Mark Schreurs","contact\_phone":"643161375","contact\_state":"Noord-Holland","contact\_street\_address":"De Ruyterkade 128","contact\_zip":"1011 AC","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Netherlands","created\_at":"2014-01-17T17:47:00Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The market for electric vehicles (EV) is preparing for rapid growth in the coming years. 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Moreover, the classic energy grid is not suited for fast charging of EVs, as this is accompanied by very high peaks in energy demand. Innovative solutions should be developed to overcome this problem.\r\n\r\nMisterGreen aims at developing an important next step for electric transportation: sustainable fast charging stations next to Dutch highway gas stations, where electric cars get fully charged in 30 minutes using solar energy. MisterGreen aims at developing a smart-grid solution – the energy needed for fast-charging is available via energy storage buffer batteries. There will be no peak energy demands on the classic energy grid as these batteries serve as energy buffer. The storage buffer batteries are charged using solar panels. A lack of available solar power can be supplemented by power from the grid.\r\n\r\nMistergreen will realize and manage a nationwide network of fast charging stations at the best locations in the Netherlands. Concessions for twenty highway locations throughout the Netherlands have been obtained until 2027. The fast charging stations will be realized next to gas stations along the highway in the Netherlands.\r\n\r\nIntergrated solar panels for onsite electricity generation will charge the batteries of the charging station. Both the battery storage and grid power provide for fast charging the EV. The battery storage pack will serve as a load-balancing power source and has smart grid functionalities.\r\n\r\nAt these highway fast charging stations, drivers can fill up their car with sustainable solar energy in less than 30 minutes.","developer":"MisterGreen Products","electronics\_provider":"Alfen","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1074,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":52.0823259,"longitude":4.7460844,"master\_project\_id":null,"name":"Solar Powered Quick Charging EV's (Bodegraven A12) - MisterGreen Products","om\_contractor":"Alfen","organization":"MisterGreen Products","owner\_1":"MisterGreen Electric Lease","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mistergreen.nl/","primary\_reference1":"","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"TU-Delft","research\_institution\_link":"","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":50,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Bodegraven","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-03-03T08:29:09Z","updated\_at\_by\_admin":"2014-01-17T18:19:20Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Alfen","zip":""}},{"project":{"announcement\_on":"2022-07-09","approval\_status":2,"city":"Mayfield West","commissioning\_on":"2022-06-17","companion":"Solar, wind, gas co-generation, building loads","construction\_on":"2022-07-03","contact\_city":"","contact\_country":"Australia","contact\_email":"tim.moore@csiro.au","contact\_info\_visible":false,"contact\_name":"Tim Moore","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2014-01-17T18:38:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-01-16","desc":"The system stored solar and wind energy produced by the building’s photovoltaic (PV) panels and wind turbines. The stored energy capacity was 500 kWh and was used to power the building and export to the electricity grid. The power capability of the battery was 100 kW and covered the total building load at night and during low load periods such as weekends. Peak loads are met by a combination of renewable energy, battery output and grid electricity. The system utilized ten modules with independent power conversion.\r\n","developer":"","electronics\_provider":"NMI Design Solutions (New Zealand)","energy\_management\_software\_provider":null,"funding\_amount\_1":2900000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Federal Government Funding - Advanced Electricity Storage Technologies","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1075,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1075/photo\_\_8\_\_\_2\_.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1075/thumb\_photo\_\_8\_\_\_2\_.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1075/partner\_photo\_\_8\_\_\_2\_.JPG"}},"integrator\_company":"ZBB Energy Corporation","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-32.884454,"longitude":151.728559,"master\_project\_id":null,"name":"CSIRO, ZBB Experimental Zinc-Bromide Flow Battery","om\_contractor":"","organization":null,"owner\_1":"Commonwealth Scientific and Industrial Research Organisation (CSIRO)","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.ret.gov.au/energy/Documents/clean-energy-program/acre/studies/ZBB-public-information-report.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"Commercial building energy management","research\_institution":"Commonwealth Scientific and Industrial Research Organisation (CSIRO)","research\_institution\_link":"www.csiro.au","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":100,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"New South Wales","status":"De-Commissioned","street\_address":"10 Murray Dwyer Circuit","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-11-07T19:25:23Z","updated\_at\_by\_admin":"2014-11-07T19:25:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"Ausgrid","utility\_type":"State/Municipal Owned","vendor\_company":"ZBB Energy Corporation","zip":"2304"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Sierra Gorda","commissioning\_on":"2022-11-15","companion":"CSP Plant","construction\_on":"2022-11-01","contact\_city":"Washington, DC","contact\_country":"United States","contact\_email":"comunicacion@solar.abengoa.com ","contact\_info\_visible":true,"contact\_name":"Allison Lenthall","contact\_phone":"+1 (202) 857-7813","contact\_state":"Washington, DC","contact\_street\_address":"1909 K Street, NW, Suite 840","contact\_zip":"20006","contractor\_1":"Abengoa Chile","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Chile","created\_at":"2014-01-20T18:12:34Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"\"The first concentrating solar power (CSP) project ever in South America is installed in the Atacama Desert in Chile. The 10.5 MW thermal parabolic trough plant is integrated into the Electrowinning (EW) process at a copper mine operated by Minera El Tesoro, a subsidiary of Antofagasta Minerals. Levels of solar radiation in the Atacama Desert are very high, making this an ideal application of solar thermal technology. The plant incorporates thermal energy storage that allows the delivery of thermal energy for up to 6.5 hours at rated power after the sun goes down.\"\r\n","developer":"Abengoa Solar","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1076,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1076/20130102\_imagen\_proyecto\_El\_Tesoro.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1076/thumb\_20130102\_imagen\_proyecto\_El\_Tesoro.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1076/partner\_20130102\_imagen\_proyecto\_El\_Tesoro.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-23.3695439,"longitude":-69.8597406,"master\_project\_id":null,"name":"Minera El Tesoro CSP Installation","om\_contractor":"","organization":"","owner\_1":"Minera El Tesoro","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://helioscsp.com/minera-el-tesoro-brings-south-americas-first-concentrated-solar-thermal-plant/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10500,"size\_kwh":6.5,"size\_kwh\_hours":6,"size\_kwh\_minutes":30.0,"state":"Atacama","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Heat Thermal Storage","technology\_type\_l1":"Heat Thermal Storage","technology\_type\_l2":"Heat Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-26T23:59:38Z","updated\_at\_by\_admin":"2016-05-16T23:30:04Z","updated\_by":null,"updated\_by\_email":null,"utility":"Minera El Tesoro","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Abengoa Solar","zip":""}},{"project":{"announcement\_on":"2022-01-20","approval\_status":2,"city":"Renton","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"ted@cleanenergystorage.net","contact\_info\_visible":true,"contact\_name":"Ted Thomas","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-20T23:04:04Z","created\_by\_id":197,"debt\_investor":"","decommissioning\_on":null,"desc":"Research & Innovation Center for Advanced Energy System 3rd Gen. LiFeMnPO4\r\n","developer":"","electronics\_provider":"Clean Energy Storage Inc.","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1077,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Global Energy Storage Solutions, Inc.","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.5877433,"longitude":-122.2413464,"master\_project\_id":null,"name":"Clean Energy Storage: Advanced Energy Storage Research & Innovation Center","om\_contractor":"Global Energy Storage Solutions, Inc.","organization":null,"owner\_1":"Clean Energy Storage Inc.","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available","primary\_reference":"http://globalenergystorage.com","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"Electric Supply Capacity","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary 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Kelley","contact\_phone":"1-650-740-3320","contact\_state":"New York","contact\_street\_address":"25 Broadway, Suite 9034","contact\_zip":"10004","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-23T00:44:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Engie Storage (formerly Green Charge Networks) is providing intelligent energy storage solutions to reduce peak demand charges with their sophisticated software algorithm and battery storage system.  In addition, Engie Storage (formerly Green Charge Networks) is aggregating locations to participate in Demand Response events to increase the savings. ","developer":"Engie Storage (formerly Green Charge Networks)","electronics\_provider":"IPC","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1081,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1081/unnamed.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1081/thumb\_unnamed.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1081/partner\_unnamed.jpg"}},"integrator\_company":"Engie Storage (formerly Green Charge Networks)","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.95984,"longitude":-73.8801301,"master\_project\_id":null,"name":"Engie Storage (formerly Green Charge Networks) (Yonkers Site 1)","om\_contractor":"","organization":"Engie Storage (formerly Green Charge 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Response events to increase the savings. ","developer":"Green Charge Networks","electronics\_provider":"IPC","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1082,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1082/Greenstation2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1082/thumb\_Greenstation2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1082/partner\_Greenstation2.jpg"}},"integrator\_company":"Green Charge Networks","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.121631,"longitude":-117.318757,"master\_project\_id":null,"name":"Carlsbad 7-Eleven Green Charge Networks 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24","contact\_zip":"95054","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-23T00:44:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks is providing intelligent energy storage solutions to reduce peak demand charges with their sophisticated software algorithm and battery storage system.  In addition, Green Charge Networks is aggregating locations to participate in Demand Response events to increase the savings. ","developer":"Green Charge 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Boulevard","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-07-31T16:04:13Z","updated\_at\_by\_admin":"2014-07-31T16:04:13Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Green Charge Networks","zip":"90650"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"San Diego","commissioning\_on":null,"companion":"","construction\_on":"2021-12-20","contact\_city":"Santa Clara","contact\_country":"United States","contact\_email":"Skelley@greenchargenet.com","contact\_info\_visible":true,"contact\_name":"Stephen Kelley","contact\_phone":"1-650-740-3320","contact\_state":"California","contact\_street\_address":"309 Laurelwood Road, Suite 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Green Charge Networks) ","zip":"94063"}},{"project":{"announcement\_on":"2022-01-24","approval\_status":2,"city":"Toton","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Segensworth East","contact\_country":"United Kingdom","contact\_email":"James.Macnaghten@isentropic.co.uk","contact\_info\_visible":true,"contact\_name":"James Macnaghten","contact\_phone":"441489565024","contact\_state":"Hampshire","contact\_street\_address":"7 Brunel Way","contact\_zip":"PO15 5TX","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2014-01-24T01:08:23Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Using Isentropic Ltd's innovative combined heat pump/heat engine, electricity is used to create a large temperature difference (+500 C hot and -160 C cold), which can then be stored in two low-cost insulated tanks filled with crushed rock. Recombining the hot and cold regenerates the electricity with an overall round-trip efficiency of 75%. Isentropic® PHES system is normally located within a steel-framed building. The storage material (crushed rock) is ideally sourced from a local quarry or mine. Assuming suitable rock is available, the only operations required are to crush the rock, grade it, wash it and dry it. The stores are designed so that they can be easily transported in smaller sections and then assembled on site.\r\n\r\nThe facility is capable of 1,900kW charging (input) power.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":14000000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Equity","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Energy Technologies Institute","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1092,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1092/Cutaway.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1092/thumb\_Cutaway.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1092/partner\_Cutaway.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":52.906367,"longitude":-1.257422,"master\_project\_id":null,"name":"Isentropic Demonstration Project","om\_contractor":"","organization":null,"owner\_1":"Isentropic Ltd","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.isentropic.co.uk","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"Frequency Regulation","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Primary Distribution","size\_kw":1400,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Nottinghamshire","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Heat Thermal Storage","technology\_type\_l1":"Heat Thermal Storage","technology\_type\_l2":"Heat Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2014-01-27T16:54:43Z","updated\_at\_by\_admin":"2014-01-27T16:54:43Z","updated\_by":null,"updated\_by\_email":null,"utility":"Western Power Distribution","utility\_type":"Investor Owned","vendor\_company":"Isentropic Ltd","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Tiszaújváros","commissioning\_on":"2022-06-25","companion":"Gas fired Power Plant with 900 MW rated power","construction\_on":"2021-12-15","contact\_city":"","contact\_country":"Hungary","contact\_email":"csontos.attila@tiszapower.eu","contact\_info\_visible":false,"contact\_name":"Attila Csontos","contact\_phone":"+36(1)358 68 74","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Hungary","created\_at":"2014-01-24T10:35:14Z","created\_by\_id":202,"debt\_investor":"","decommissioning\_on":null,"desc":"Energen's IntelliStore 1000 has been connected to a gas-fired electricity generator plant. With its 900 MW installed generator capacity the plant is an ideal site to use the storage device for ramping and phasing services. If idle, the plant's own electricity usage is optimized - no peak prices need to be paid.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Equity","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1093,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1093/TE\_Power\_Plant\_1MWh.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1093/thumb\_TE\_Power\_Plant\_1MWh.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1093/partner\_TE\_Power\_Plant\_1MWh.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.9059454,"longitude":21.060634,"master\_project\_id":null,"name":"IntelliStore 1000 - 1MWh Power Plant Balancing Power Optimization","om\_contractor":"","organization":"","owner\_1":"Energen Power Holding AB","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://docs.wixstatic.com/ugd/40b5be\_3da9a777108dbf8df8b2e062b29b95d3.pdf","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"Ramping ","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":500,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Borsod","status":"Operational","street\_address":"Verebély László u. 2","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-30T04:08:30Z","updated\_at\_by\_admin":"2016-05-16T23:32:19Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Energy Power Holding AB","utility\_type":"Investor Owned","vendor\_company":"","zip":"3580"}},{"project":{"announcement\_on":"2022-07-01","approval\_status":1,"city":"San Francisco","commissioning\_on":"2022-07-30","companion":"307 kW PV Array","construction\_on":"2022-08-01","contact\_city":"San Francisco","contact\_country":"United States","contact\_email":"laura\_castellini@nps.gov","contact\_info\_visible":true,"contact\_name":"Laura Castellini (Sustainability Coordinator, National Park Service, Golden Gate National Recreation Area)","contact\_phone":"(415) 561-4789","contact\_state":"California","contact\_street\_address":"Fort Mason Building 101","contact\_zip":"94123","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":3600000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-24T17:41:58Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The US National Park Service, National Renewable Energy Laboratory, US Department of Energy and Princeton Power Systems collaborated to install a commercial scale Microgrid System on Alcatraz Island as a solution to high diesel fuel costs, pollution in the bay area, and high carbon emissions. When a ship’s anchor ruptured the underwater power lines in 1950, that linked the island to San Francisco, Alcatraz was forced to turn to diesel fuel and coal as its source of power. This has led to power costs of $0.76/kWh. \r\n\r\nMicrogrid Design: \r\nThis project reflects the National Park Service’s initiative to find an alternative way of powering the island in order to reduce fuel costs and pollution. A microgrid system, comprised of PPS inverters, a solar array, advanced lead-acid batteries, a PPS Site Controller, and back-up generators, was selected as a way to independently power the island. Designing and building the system on one of California’s and the U.S.’s most well-known historic landmarks with over 1 million visitors per year, created many challenges. \r\n\r\nComponent Placement: Preserving the island in pristine condition while completing the installation was the greatest challenge. Given that a system of this size requires a large construction effort, component placement was key. To prevent the solar array from being visible from San Francisco, it was placed on the roof of the prison in a flat configuration rather than a traditional angled configuration. The inverters, battery rack, and generators were placed in the old generator room, as this space is isolated and not accessible for tourists. The room was also protected from the harsh salt water environment.\r\n\r\nCommissioning: The fragile natural environment and wildlife, particularly the birds (Alcatraz is an old Spanish word for pelican), added to the challenge. Extra attention was given to the solar panels after being damaged by rocks and shells dropped from overhead birds. Despite the coarse condition of the generator room, engineers were able to insulate the room to prevent future problems and ensure reliable long-term operation.","developer":"","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 - RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"DOE Federal Energy Management Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1095,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1095/20120723\_at\_pix21415\_large-300x187.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1095/thumb\_20120723\_at\_pix21415\_large-300x187.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1095/partner\_20120723\_at\_pix21415\_large-300x187.jpg"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.8269775,"longitude":-122.4229555,"master\_project\_id":null,"name":"Alcatraz Island Microgrid ","om\_contractor":"","organization":"National Park Service","owner\_1":"Golden Gate Recreational Area, National Park Service","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"$0.71/kWh ","primary\_reference":"http://www.princetonpower.com/images/casestudies/pdfs/Alcatraz\_CaseStudy\_September2015.pdf","primary\_reference1":"http://www.nps.gov/goga/learn/nature/sustainable-alcatraz.htm","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":400,"size\_kwh":4.75,"size\_kwh\_hours":4,"size\_kwh\_minutes":45.0,"state":"California","status":"Operational","street\_address":"Alcatraz Island","systems\_integration":"","technology\_classification":"","technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-05T04:29:41Z","updated\_at\_by\_admin":"2016-03-21T23:20:35Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"East Penn Manufacturing (Deka Unigy II)","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Almisano","commissioning\_on":null,"companion":"","construction\_on":"2022-01-01","contact\_city":"Montecchio Maggiore","contact\_country":"Italy","contact\_email":"samuele.lupatini@fiamm.com","contact\_info\_visible":false,"contact\_name":"Lupatini Samuele","contact\_phone":"(706) 437-3220","contact\_state":"Vicenza","contact\_street\_address":"Viale Europa, 75","contact\_zip":"36075","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-01-27T19:23:31Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The plant has an appropriate storage capacity thanks to Fiamm SoNick salt batteries. It is linked to the grid of the production plant and it has a peak power of 181 kW and a storage capacity of 230 kWh.","developer":"","electronics\_provider":"FIAMM Energy Storage Solutions","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1096,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"FIAMM Energy Storage Solutions","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":45.43195,"longitude":11.3683479,"master\_project\_id":null,"name":"FIAMM Green Energy Island","om\_contractor":"","organization":"FIAMM","owner\_1":"FIAMM spa","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.globalenergyworld.com/news/2137/innovative\_energy\_storage\_solutions\_by\_santerno\_and\_fiamm.htm","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"Galileia (Padoua University), Terni Energia, Elettronica Santerno","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":181,"size\_kwh":1.26666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":16.0,"state":"Veneto","status":"Operational","street\_address":"Via Dovaro, 8 - Lonigo (VI)","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-05T05:49:13Z","updated\_at\_by\_admin":"2014-11-07T21:07:54Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"FIAMM","utility\_type":"Investor Owned","vendor\_company":"FIAMM Energy Storage Solutions","zip":"36045"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Incheon","commissioning\_on":null,"companion":"","construction\_on":"2022-01-01","contact\_city":"Montecchio Maggiore","contact\_country":"","contact\_email":"jae.choi@fiamm.com","contact\_info\_visible":true,"contact\_name":"Jae Choi","contact\_phone":"5625650281","contact\_state":"Vicenza","contact\_street\_address":"Viale Europa, 75","contact\_zip":"36075","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2014-01-27T19:23:32Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"With the lowest cost of ownership and zero ambient emissions, sodium energy backup systems are designed to operate in extreme temperature conditions (-40°C to +65°C).  Able to execute more than 4500 cycles at 80% DoD. No cooling required and integrated BMS.\r\n","developer":"","electronics\_provider":"FIAMM Energy Storage Solutions","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1097,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"FIAMM Energy Storage Solutions, POSCO Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.4562557,"longitude":126.7052062,"master\_project\_id":null,"name":"POSCO Secondary Battery Research Activity","om\_contractor":"","organization":"FIAMM ","owner\_1":"POSCO Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.poscoenergy.com/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":198,"size\_kwh":0.7,"size\_kwh\_hours":0,"size\_kwh\_minutes":42.0,"state":"Seoul","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-05T05:40:14Z","updated\_at\_by\_admin":"2014-11-07T21:06:23Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"POSCO Energy","utility\_type":"Investor Owned","vendor\_company":"FIAMM Industrial Batteries","zip":"467"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Shanghai","commissioning\_on":null,"companion":"","construction\_on":"2022-01-01","contact\_city":"Montecchio Maggiore","contact\_country":"","contact\_email":"demetrio.baronetto@fiamm.com","contact\_info\_visible":false,"contact\_name":"Baronetto Demetrio","contact\_phone":"0039 41916415364","contact\_state":"Vicenza","contact\_street\_address":"Viale Europa, 75","contact\_zip":"6855","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-01-27T19:23:33Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"With the lowest cost of ownership and zero ambient emissions, sodium energy backup systems are designed to operate in extreme temperature conditions (-40°C to +65°C).  Able to execute more than 4500 cycles at 80% DoD. No cooling required and integrated BMS. Project provides backup power and load following during peak hours","developer":"","electronics\_provider":"FIAMM Energy Storage Solutions","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1098,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"FIAMM Energy Storage Solutions, State Grid Corporation of China","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":31.2306855,"longitude":121.472935,"master\_project\_id":null,"name":"State Grid Shanghai FIAMM Battery Project","om\_contractor":"","organization":"FIAMM","owner\_1":"State Grid Corporation of China","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.sgcc.com.cn/ywlm/index.shtml","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":1.7,"size\_kwh\_hours":1,"size\_kwh\_minutes":42.0,"state":"Shanghai","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-22T04:59:57Z","updated\_at\_by\_admin":"2014-11-07T21:06:00Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"State Grid Corporation of China (SGCC)","utility\_type":"Federally Owned","vendor\_company":"FIAMM Industrial Batteries","zip":"200000"}},{"project":{"announcement\_on":"2022-01-01","approval\_status":2,"city":"Watkins","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"Montecchio Maggiore","contact\_country":"","contact\_email":"jae.choi@fiamm.com","contact\_info\_visible":false,"contact\_name":"Jae Choi","contact\_phone":"5625650281","contact\_state":"Vicenza","contact\_street\_address":"Viale Europa, 75","contact\_zip":"36075","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-27T19:23:34Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Solar Technology Acceleration Center \r\n(SolarTAC) is an integrated, world-class \r\nfacility where the solar industry and \r\nsolar energy users can test, validate and \r\ndemonstrate advanced solar technologies \r\nunder actual field conditions.\r\n\r\nWith the lowest cost of ownership and zero ambient emissions, sodium energy backup systems are designed to operate in extreme temperature conditions (-40°C to +65°C).  Able to execute more than 4500 cycles at 80% DoD. No cooling required and integrated BMS. Project includes 1 CABINET (3 Z37 620V 38Ah), PV smoothing, and load shifting.","developer":"","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1099,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1099/Untitled.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1099/thumb\_Untitled.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1099/partner\_Untitled.png"}},"integrator\_company":"FIAMM, Xcel Energy SolarTac","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.755625,"longitude":-104.620034,"master\_project\_id":null,"name":"Xcel SolarTAC CES Test","om\_contractor":"","organization":null,"owner\_1":"Confidential","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.solartac.org/About/Members/XcelEnergy.aspx","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"The Solar Technology Acceleration Center (SolarTAC) is an integrated, world-class facility where the solar industry and solar energy users can test, validate and demonstrate advanced solar technologies under actual field conditions The SolarTAC mission is to increase the performance, cost-effectiveness and reliability of solar energy products for rapid deployment in the growing commercial market.","research\_institution":"Xcel Energy Solar Technology Acceleration Center","research\_institution\_link":"www.solartac.org","service\_use\_case\_1":"Grid-Connected Residential (Reliability)","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":25,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Colorado","status":"Operational","street\_address":"2700-2800 Hudson Mile Rd","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-11-07T21:05:40Z","updated\_at\_by\_admin":"2014-11-07T21:05:40Z","updated\_by":null,"updated\_by\_email":null,"utility":"Xcel Energy","utility\_type":"Investor Owned","vendor\_company":"FIAMM Energy Storage Solutions","zip":"80137"}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Malè","commissioning\_on":"2022-01-01","companion":"Hybrid microgrid (solar PV and genset)","construction\_on":null,"contact\_city":"Polverara","contact\_country":"Italy","contact\_email":"manager@t-and-d-italy.com","contact\_info\_visible":true,"contact\_name":"Aldo Talamali","contact\_phone":"0039 049 9772405","contact\_state":"Padova","contact\_street\_address":"via E. Fermi 6","contact\_zip":"35020","contractor\_1":"T&D Water Technologies and Development","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Maldives","created\_at":"2014-01-27T19:23:35Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"All the Systems were designed by T&D Water Technologies and Development. The complex itself, valued at more than 45 million dollars, was designed by Japanese architect resident in New York, Yuji Yamazaki, and in partnership with T&D Water Technologies and Development. The project includes distribution networks, reverse osmosis for drinkable water, sewerage, conditioning and hot water production, and the Microgrid Hybrid Energy System, all designed to make of Gasfinolhu the first eco-friendly and sustainable luxury resort in the world. Its exclusive design, developed by T&D with first class commercial partners for batteries, inverters, photovoltaic panels, thermic solar panels, is focused to allow complete self-sufficiency of Gasfinolhu Island Resort, without harm the environment. Especially for this project, has been designed by T&D a photovoltaic canopy over the jetties with built-in panels, lighting system and other equipment, in order to use every area of the resort to yield energy and improve the system.\r\nThe battery used was Sodium Nickel with integrated BMS, 64 batteries working at 620V with 23.5 kWh each.\r\nEverything is managed and controlled by a PMS (Power Management System), which is constantly monitored from Italy by T&D technicians.","developer":"T&D Water Technologies and Development with support of Nidec ASI, FIAMM, ABB","electronics\_provider":"Nidec ASI","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":null,"hidden":false,"id":1100,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1100/Untitled.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1100/thumb\_Untitled.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1100/partner\_Untitled.png"}},"integrator\_company":"T&D Water Technologies and Development","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":4.361631,"longitude":73.62614,"master\_project\_id":null,"name":"Gasfinolhu Island Resort - T&D Water Technologies and Development (with Nidec ASI, FIAMM, ABB)","om\_contractor":"Club Med","organization":"T&D Water Technologies and Development","owner\_1":"T&D Water Technologies and Development / CHAMPA","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.maldives.com/club-med-unveils-worlds-first-100-percent-solar-powered-luxury-resort/","primary\_reference1":"https://www.nidec-industrial.com/wp-content/uploads/2017/06/DEP2014.10.00EN.Case-Study\_Maldive-LR.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Load Following (Tertiary Balancing)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"Renewables Energy Time 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Project","om\_contractor":"","organization":null,"owner\_1":"Confidential","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.edf-energies-nouvelles.com/en/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Voltage Support","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":20,"size\_kwh":3.5,"size\_kwh\_hours":3,"size\_kwh\_minutes":30.0,"state":"Linguadoca-Rossiglione","status":"Operational","street\_address":"Colombiers","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-11-07T21:05:08Z","updated\_at\_by\_admin":"2014-11-07T21:05:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"EDF EN","utility\_type":"Public Owned","vendor\_company":"FIAMM Energy Storage Solutions","zip":"34440"}},{"project":{"announcement\_on":"2022-01-01","approval\_status":2,"city":"Savona","commissioning\_on":"2022-02-12","companion":"Ev Charging Stations, PV Array","construction\_on":null,"contact\_city":"Savona","contact\_country":"Italy","contact\_email":"federico.delfino@unige.it","contact\_info\_visible":true,"contact\_name":"Federico Delfino","contact\_phone":"0039 01921945301","contact\_state":"Savona","contact\_street\_address":"Via Magliotto 2","contact\_zip":"I-17100","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-01-27T19:23:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The University of Genoa developed a smart polygeneration microgrid for the campus of Savona that was officially commissioned on February 12, 2014.\r\nThe whole infrastructure was assembled by Siemens Italia Spa, which won the public tender to build the microgrid. \r\n\r\nSince then, the campus has largely generated enough power to satisfy its own needs with the help of several networked energy producers – with total capacity of 250 kW of electricity and 300 kW of heating. Three highly efficient gas micro­turbines supply the power, as well as the heat that is distributed across the campus via a district heating grid. An absorption chiller provides cooling energy during summer season. In addition to the gas turbines, a concentrated solar power station with three modules based on Stirling engine technology and a photovoltaic plant with four solar cells are used to produce power. An electrochemical and two traditional boilers serve as a buffer; as needed, they balance fluctuations in the power supply caused by fluctuating producers. Two electric vehicles and two charging stations have also been added on the consumption side.\r\n\r\nEverything is connected to the control center on the campus, which ensures smart energy management of the microgrid. The microgrid management system monitors and manages the resources. To do so, the smart software draws on comprehensive generation and consumption forecasts and continuous real­time optimization so it can respond quickly and flexibly to changing condi­tions in power generation and consumption.\r\n\r\nThe sodium energy backup systems are designed to operate in extreme temperature conditions (-40°C to +65°C).  Able to execute more than 4500 cycles at 80% DoD. No cooling required and integrated BMS. Unit: Spring 306, PV smoothing, backup power, load shifting\r\n\r\nA video describing the project is found here:\r\n\r\nhttps://www.youtube.com/watch?v=NxZ\_ahPpP34","developer":"University of Genoa","electronics\_provider":"Nidec, Aros","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1102,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1102/dd.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1102/thumb\_dd.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1102/partner\_dd.png"}},"integrator\_company":"FIAMM Energy Storage Solutions, Siemens AG","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":44.300878,"longitude":8.451039,"master\_project\_id":"","name":"Smart Polygeneration Microgrid, Univeristy of Genoa","om\_contractor":"Siemens AG","organization":null,"owner\_1":"University of Genoa","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://w3.siemens.com/smartgrid/global/SiteCollectionDocuments/References/Reference%20Flyer%20Microgrid%20Savona\_e.PDF","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"Network Infrastructures & Complex Electrical Energy Systems, University of Genoa","research\_institution\_link":"http://www.cens.unige.it/ricerca/gruppo/nices-lab","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":63,"size\_kwh":2.36666666666667,"size\_kwh\_hours":2,"size\_kwh\_minutes":22.0,"state":"Liguria","status":"Operational","street\_address":"University of Genoa","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-11-07T21:04:49Z","updated\_at\_by\_admin":"2014-11-07T21:04:49Z","updated\_by":null,"updated\_by\_email":null,"utility":" ","utility\_type":"","vendor\_company":"FIAMM Energy Storage Solutions","zip":"I-17100"}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Sacramento","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"Montecchio Maggiore","contact\_country":"","contact\_email":"jae.choi@fiamm.com","contact\_info\_visible":false,"contact\_name":"Jae Choi","contact\_phone":"5625650281","contact\_state":"Vicenza","contact\_street\_address":"Viale Europa, 75","contact\_zip":"36075","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-27T19:23:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Project Objectives:\r\n– Minimize impact of PV variability\r\n– Control PV and PHEV charger ramp \r\nrates\r\n– Voltage regulation and voltage sag \r\nmitigation\r\n– Peak load shifting","developer":"","electronics\_provider":"Parker Hannfin","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1103,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"FIAMM, GreenSmith, Parker Hannfin","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"BANC","latitude":38.553074,"longitude":-121.434074,"master\_project\_id":null,"name":"SMUD Solar EV Charge Port","om\_contractor":"","organization":"FIAMM","owner\_1":"Sacramento Municipal Utility District","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.smud.org/en/index.htm","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Transportation Services","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":50,"size\_kwh":2.6,"size\_kwh\_hours":2,"size\_kwh\_minutes":36.0,"state":"California","status":"Operational","street\_address":"6201 S Street","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-26T18:39:03Z","updated\_at\_by\_admin":"2015-12-24T01:32:42Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Sacramento Municipal Utility District","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"FIAMM Energy Storage Solutions","zip":"94203"}},{"project":{"announcement\_on":"2022-08-06","approval\_status":1,"city":"Montsinéry-Tonnegrande","commissioning\_on":"2022-01-07","companion":"5 MW Solar Power 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reliable service for the network manager.\r\n\r\nThe electrical equipment of the installation is remotely controlled by innovative software developed by EDF Store & Forecast and EDF Energies Nouvelles, which provide the grid operator with very accurate forecasts of daily production.\r\n\r\nInstalled batteries contribute to the stability of the Guyanese electricity grid by absorbing excess solar energy produced and restoring it according to the needs of the network. The Sunzil teams, a 50% local subsidiary of EDF Energies Nouvelles, were in charge of the solar generator and the storage system was built by the FIAMM-NIDEC consortium.","developer":"","electronics\_provider":"FIAMM Energy Storage Solutions","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1104,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1104/p1010054.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1104/thumb\_p1010054.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1104/partner\_p1010054.jpg"}},"integrator\_company":"FIAMM, EDF Energies Nouvelles France","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":4.895691,"longitude":-52.508253,"master\_project\_id":null,"name":"EDF EN Guiana, Toucan Project","om\_contractor":"","organization":"","owner\_1":"EDF Energies Nouvelles France","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.edf-energies-nouvelles.com/edf-energies-nouvelles-met-service-toucan-centrale-solaire-innovante-stockage/","primary\_reference1":"https://www.edf-energies-nouvelles.com/carte-realisations/?project\_type=111&project\_country=&project\_year=19","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1600,"size\_kwh":2.8,"size\_kwh\_hours":2,"size\_kwh\_minutes":48.0,"state":"Montsinéry-Tonnegrande","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T23:43:28Z","updated\_at\_by\_admin":"2014-11-07T21:03:39Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"EDF Energies Nouvelles France","utility\_type":"","vendor\_company":"FIAMM Energy Storage Solutions","zip":"97356"}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Le Bourget du Lac","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"Stabio","contact\_country":"","contact\_email":"mario.vona@fiamm.com","contact\_info\_visible":false,"contact\_name":"Vona Mario","contact\_phone":"0039 41916415316","contact\_state":"Stabio","contact\_street\_address":"Via Laveggio 15","contact\_zip":"6855","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2014-01-27T19:35:02Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Institut National de l'Energie Solaire (INES) partners with Commissariat à l’énergie atomique et aux énergies alternatives (CEA) for ongoing R&D into all aspects of solar photovoltaic energy. \r\n\r\nWith the lowest cost of ownership and zero ambient emissions, sodium energy backup systems are designed to operate in extreme temperature conditions (-40°C to +65°C).  Able to execute more than 4500 cycles at 80% DoD. No cooling required and integrated BMS.","developer":"","electronics\_provider":"FIAMM Energy Storage Solutions","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1105,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1105/ines.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1105/thumb\_ines.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1105/partner\_ines.jpg"}},"integrator\_company":"FIAMM, INES-CEA","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":45.643296,"longitude":5.874682,"master\_project\_id":null,"name":"INES Project","om\_contractor":"","organization":"FIAMM","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.ines-solaire.org/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"Institut National de l'Energie Solaire","research\_institution\_link":"","service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":120,"size\_kwh":1.16666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":10.0,"state":"Rodano-Alpi","status":"Operational","street\_address":"50 Avenue du Lac Léman","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-17T20:51:52Z","updated\_at\_by\_admin":"2014-11-07T21:03:18Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"INES-CEA","utility\_type":"Federally Owned","vendor\_company":"FIAMM Energy Storage Solutions","zip":"73375 "}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Azusa","commissioning\_on":"2022-09-06","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3232","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Ice Energy","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-27T22:57:40Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Ice Energy’s flagship Ice Bear system enables a powerful change in how – and more importantly when – energy is consumed for air conditioning.\r\nThe Ice Bear system is an intelligent distributed energy storage solution that works in conjunction with commercial direct-expansion (DX) air-conditioning systems, specifically the refrigerant-based, 4-20-ton packaged rooftop systems common to most small to mid-sized commercial buildings.\r\nThe system stores energy at night, when electricity generation is cleaner, more efficient and less expensive, and delivers that energy during the peak of the day to provide cooling to the building.\r\nDaytime energy demand from air conditioning – typically 40-50% of a building’s electricity use during peak daytime hours – can be reduced significantly. 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Ogden Ave. The IceBearTM clean energy storage system, installed at no cost to Naperville, allows the City to more efficiently and effectively utilize air conditioning and upgrades aging infrastructure at this location.\r\n\r\nIce Energy’s IceBear™ replaces conventional condensing units in a typical building cooling system and shifts the air conditioning electrical power demand to off-peak hours by using water to make ice at night, when the electric grid is generally unstressed. Then, during a hot summer day, when demand goes up and electric prices may be higher, the melting ice provides the cooling that otherwise would have to come from the air conditioner’s compressor. The melted water is then recycled through the system when the process begins again the following night. The result is lower energy costs and increased electric grid reliability","developer":"Ice Energy","electronics\_provider":"N/A","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1187,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1187/Ice\_Energy\_Ice\_Bear.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1187/thumb\_Ice\_Energy\_Ice\_Bear.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1187/partner\_Ice\_Energy\_Ice\_Bear.jpg"}},"integrator\_company":"Ice Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.7818646,"longitude":-88.1751855,"master\_project\_id":null,"name":"1200 W Ogden Ave - Ice Energy","om\_contractor":"Ice Energy","organization":"Ice Energy","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.ice-energy.com/city-naperville-verde-energy-usa-successfully-install-icebear-technology-napervilles-water-service-center/","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Illinois","status":"Operational","street\_address":"1200 W Ogden Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-10T21:36:47Z","updated\_at\_by\_admin":"2014-08-12T17:35:59Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"Public Owned","vendor\_company":"Ice Energy","zip":"60563"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Orange","commissioning\_on":"2022-08-08","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3232","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Ice Energy","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-27T22:57:55Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Ice Energy’s flagship Ice Bear system enables a powerful change in how – and more importantly when – energy is consumed for air conditioning.\r\nThe Ice Bear system is an intelligent distributed energy storage solution that works in conjunction with commercial direct-expansion (DX) air-conditioning systems, specifically the refrigerant-based, 4-20-ton packaged rooftop systems common to most small to mid-sized commercial buildings.\r\nThe system stores energy at night, when electricity generation is cleaner, more efficient and less expensive, and delivers that energy during the peak of the day to provide cooling to the building.\r\nDaytime energy demand from air conditioning – typically 40-50% of a building’s electricity use during peak daytime hours – can be reduced significantly. 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During the day when it's hot, the system uses the ice, rather than the air conditioning unit's compressor, to cool the hot refrigerant, slowly melting the ice and cooling the building.\r\n\r\nThe units will serve the Citizens Bank and Gryphon buildings, both considered historic Rutland structures.\r\n\r\nThe project is being managed by GMP's Energy Innovation Center, which is leading the company's efforts to make Rutland the Solar Capital of New England by developing a variety of innovative pilot programs.","developer":"Green Mountain Power Energy Innovation Center","electronics\_provider":"N/A","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1211,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1211/Ice\_Energy\_Ice\_Bear.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1211/thumb\_Ice\_Energy\_Ice\_Bear.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1211/partner\_Ice\_Energy\_Ice\_Bear.jpg"}},"integrator\_company":"Ice Energy","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":43.607989,"longitude":-72.980894,"master\_project\_id":null,"name":"Citizens Bank Ice Energy Project 2 - Green Mountain Power Energy Innovation Center","om\_contractor":"Ice Energy","organization":"Ice Energy","owner\_1":"Green Mountain Power","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.ice-energy.com/green-mountain-power-begins-ice-storage-pilot-project-rutland-vt/","primary\_reference1":"http://www.reformer.com/stories/vermonts-largest-utility-launches-ice-storage-experiment,371606","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Vermont","status":"Operational","street\_address":"47 Merchants Row","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-10T21:44:52Z","updated\_at\_by\_admin":"2016-04-18T20:25:01Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Green Mountain Power","utility\_type":"","vendor\_company":"Ice Energy","zip":"05701"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"St. Charles","commissioning\_on":"2022-07-02","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3232","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Ice Energy","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-27T22:58:09Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Ice Bear replaces conventional condensing units, a component of a typical building cooling system. It\r\nshifts air conditioning electrical power demand to off-peak hours by using plain water to make ice at night,\r\nwhen the electric grid is generally unstressed. Then, during the hot summer day, when demand goes up\r\nand electric prices may be higher, the melting ice bathes the air conditioner's compressor with cool air so\r\nthe air conditioning unit uses less energy at a peak demand time to cool the building. The melted water is\r\nthen recycled through the system when the process begins again the following night. The result is lower\r\nenergy costs and increased grid reliability. In St. Charles, the Ice Bear technology will be installed at the\r\nmunicipal water treatment laboratory building, located at the City’s Public Works complex, replacing an\r\naging, inefficient air conditioning unit","developer":"Ice Energy","electronics\_provider":"N/A","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1212,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1212/Ice\_Energy\_Ice\_Bear.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1212/thumb\_Ice\_Energy\_Ice\_Bear.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1212/partner\_Ice\_Energy\_Ice\_Bear.jpg"}},"integrator\_company":"Ice Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.9036393,"longitude":-88.3014714,"master\_project\_id":null,"name":"St. Charles City Purchasing Department - Ice Energy","om\_contractor":"Ice Energy","organization":"Ice Energy","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.lowcostpower.com/includes/PressReleases/St-Charles-Partnership-12.4.2012.pdf","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Illinois","status":"Operational","street\_address":"200 Devereaux Way","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-10T22:03:37Z","updated\_at\_by\_admin":"2016-04-18T20:32:49Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Ice Energy","zip":"60174"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Temecula","commissioning\_on":"2022-08-10","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877)542-3232","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Ice Energy","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-27T22:58:09Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Ice Energy’s flagship Ice Bear system enables a powerful change in how – and more importantly when – energy is consumed for air conditioning. The Ice Bear system is an intelligent distributed energy storage solution that works in conjunction with commercial direct-expansion (DX) air-conditioning systems, specifically the refrigerant-based, 4-20-ton packaged rooftop systems common to most small to mid-sized commercial buildings.\r\n\r\nThe system stores energy at night, when electricity generation is cleaner, more efficient and less expensive, and delivers that energy during the peak of the day to provide cooling to the building. Daytime energy demand from air conditioning – typically 40-50% of a building’s electricity use during peak daytime hours – can be reduced significantly. In kilowatts, each Ice Bear delivers an average reduction of 12 kW of source equivalent peak demand for a minimum of 6 hours daily, shifting 72 kW-hours of on-peak energy to off-peak hours.\r\n\r\nIce Bear units are typically owned by utilities and installed at distributed locations behind the customer meter on commercial and industrial sites. When aggregated and deployed at scale, a typical utility deployment will shift the operation of thousands of commercial AC condensing units from on-peak periods to off-peak periods, reducing electric system demand, improving electric system load factor, reducing electric system costs, and improving overall electric system efficiency and power quality.","developer":"Ice Energy","electronics\_provider":"NA","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1213,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1213/1213\_Wilson\_Creek\_Winery.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1213/thumb\_1213\_Wilson\_Creek\_Winery.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1213/partner\_1213\_Wilson\_Creek\_Winery.jpg"}},"integrator\_company":"Ice Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.54781,"longitude":-117.046058,"master\_project\_id":null,"name":"Wilson Creek Winery - Ice Energy","om\_contractor":"Ice Energy","organization":"Ice Energy","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.ice-energy.com","primary\_reference1":"http://www.elp.com/articles/powergrid\_international/print/volume-19/issue-6/departments/notes/case-study-thermal-energy-storage-saves-california-winery-nearly-30k-a-year.html","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":210,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"35960 Rancho California","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-04T02:37:55Z","updated\_at\_by\_admin":"2016-04-18T21:40:13Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Ice Energy","zip":"92591"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Temecula","commissioning\_on":"2022-03-21","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3232","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Ice Energy","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-27T22:58:11Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Ice Energy’s flagship Ice Bear system enables a powerful change in how – and more importantly when – energy is consumed for air conditioning. The Ice Bear system is an intelligent distributed energy storage solution that works in conjunction with commercial direct-expansion (DX) air-conditioning systems, specifically the refrigerant-based, 4-20-ton packaged rooftop systems common to most small to mid-sized commercial buildings.\r\n\r\nThe system stores energy at night, when electricity generation is cleaner, more efficient and less expensive, and delivers that energy during the peak of the day to provide cooling to the building. Daytime energy demand from air conditioning – typically 40-50% of a building’s electricity use during peak daytime hours – can be reduced significantly. In kilowatts, each Ice Bear delivers an average reduction of 12 kW of source equivalent peak demand for a minimum of 6 hours daily, shifting 72 kW-hours of on-peak energy to off-peak hours.\r\n\r\nIce Bear units are typically owned by utilities and installed at distributed locations behind the customer meter on commercial and industrial sites. When aggregated and deployed at scale, a typical utility deployment will shift the operation of thousands of commercial AC condensing units from on-peak periods to off-peak periods, reducing electric system demand, improving electric system load factor, reducing electric system costs, and improving overall electric system efficiency and power quality.","developer":"Ice Energy","electronics\_provider":"N/A","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1214,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1214/Ice\_Energy\_Ice\_Bear.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1214/thumb\_Ice\_Energy\_Ice\_Bear.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1214/partner\_Ice\_Energy\_Ice\_Bear.jpg"}},"integrator\_company":"Ice Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.536932,"longitude":-117.0507219,"master\_project\_id":null,"name":"Ponte Winery - Ice Energy","om\_contractor":"Ice Energy","organization":"Ice Energy","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.ice-energy.com","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":60,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"35053 Rancho California Road ","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-10T22:10:49Z","updated\_at\_by\_admin":"2016-04-18T21:47:02Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Ice Energy","zip":"92592"}},{"project":{"announcement\_on":"2022-04-17","approval\_status":2,"city":"Satrokala","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@tozzinord.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Madagascar","created\_at":"2014-01-28T13:38:55Z","created\_by\_id":204,"debt\_investor":"","decommissioning\_on":null,"desc":"A Stand Alone energy storage system, integrating wind turbine TN535 supplied by Tozzi Nord (10 KW) and a PV plant (3 KW), has been installed in Satrokala, Madagascar, close to a small village. \r\n\r\nThis energy storage system sets in motion an important pumping water plant. In this way it allows the supply of 12,000 liters of water daily, matching the estimated average consumption of water of the local population. The system is also able to meet the energy needs of a local nursery in addition to Tozzi offices.\r\n\r\nThis initiative is part of a wider project of Tozzi Industrial Group committed to resolving energy supply problems in the countries of subtropical belt, accordingly to the sustainable development principles.","developer":"TRE SpA Tozzi Renewable Energy","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1215,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1215/Tozzi\_stand-alone-system.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1215/thumb\_Tozzi\_stand-alone-system.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1215/partner\_Tozzi\_stand-alone-system.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-22.335239,"longitude":45.707901,"master\_project\_id":null,"name":"Tozzi Green - Madagascar","om\_contractor":"TRE SpA Tozzi Renewable Energy","organization":null,"owner\_1":"Tozzi Green","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.tozzigreen.com/","primary\_reference1":null,"projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":15,"size\_kwh":3.75,"size\_kwh\_hours":3,"size\_kwh\_minutes":45.0,"state":"Fianarantsoa","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Valve Regulated Lead-acid Battery","technology\_type\_l1":"Valve Regulated Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-18T21:54:56Z","updated\_at\_by\_admin":"2016-04-18T21:54:56Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"313"}},{"project":{"announcement\_on":"2022-01-29","approval\_status":1,"city":"Fremont","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Lawrenceville","contact\_country":"United States","contact\_email":"dhammell@princetonpower.com; info@princetonpower.com; sales@princetonpower.com","contact\_info\_visible":false,"contact\_name":"Darren Hammell","contact\_phone":"(609) 955-5390","contact\_state":"NJ","contact\_street\_address":"3175 Princeton Pike","contact\_zip":"8648","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-29T00:23:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Princeton Power Systems was selected by Tesla to supply power inverters for a highly innovative peak-shaving program in California. Spearheaded by SolarCity, the project involves locally storing energy from rooftop photovoltaic arrays to help offset peak demand and thus minimize demand charges. SolarCity is estimating a 20 percent reduction in demand charges, which can amount to millions of dollars annually among large commercial customers. Princeton Power Systems will provide GTIB-30s and GTIB-100s inverters. \r\n\r\nThe Princeton Power Systems inverters combined with Tesla’s lithium-ion battery technology will store locally-generated energy to supplement the grid during times of high demand. This will avoid costly spikes in energy demand in addition to providing backup power during outages.\r\n\r\nhttp://www.princetonpower.com/images/casestudies/pdfs/Tesla\_CaseStudy\_September2015.pdf","developer":"","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1216,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1216/Tesla2.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1216/thumb\_Tesla2.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1216/partner\_Tesla2.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":37.5482697,"longitude":-121.9885719,"master\_project\_id":"1216:1217","name":"SolarCity / Tesla / Princeton Power Grid Services Project (Fremont Site 1)","om\_contractor":"","organization":null,"owner\_1":"Confidential","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.princetonpower.com","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-18T22:13:10Z","updated\_at\_by\_admin":"2016-04-18T22:13:10Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Tesla","zip":""}},{"project":{"announcement\_on":"2022-01-29","approval\_status":1,"city":"Fremont","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Lawrenceville","contact\_country":"United States","contact\_email":"dhammell@princetonpower.com; info@princetonpower.com","contact\_info\_visible":false,"contact\_name":"Darren Hammell","contact\_phone":"(609) 955-5390","contact\_state":"NJ","contact\_street\_address":"3175 Princeton Pike","contact\_zip":"8648","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-29T00:23:39Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Princeton Power Systems has been selected by Tesla to supply power inverters for a highly innovative peak-shaving program in California. Spearheaded by SolarCity, the project involves locally storing energy from rooftop photovoltaic arrays to help offset peak demand and thus minimize demand charges. SolarCity is estimating a 20 percent reduction in demand charges, which can amount to millions of dollars annually among large commercial customers. Princeton Power Systems will provide GTIB-30s and GTIB-100s inverters. \r\n\r\nThe Princeton Power Systems inverters combined with Tesla’s lithium-ion battery technology will store locally-generated energy to supplement the grid during times of high demand. This will avoid costly spikes in energy demand in addition to providing backup power during outages.\r\n\r\nInverters are at the heart of these advanced solar energy systems — managing the power flow between the PV and batteries. Princeton Power Systems inverters are capable of transitioning between grid-tied and island-mode operation to enable continued renewable energy harvest when grid power is not available. \r\n\r\n ","developer":"","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1217,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1217/Tesla3.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1217/thumb\_Tesla3.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1217/partner\_Tesla3.JPG"}},"integrator\_company":"SolarCity","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":37.5482697,"longitude":-121.9885719,"master\_project\_id":"1216","name":"SolarCity / Tesla / Princeton Power EV Charging Station (Fremont Site 2)","om\_contractor":"","organization":null,"owner\_1":"Confidential","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.princetonpower.com/images/casestudies/pdfs/Tesla\_CaseStudy\_September2015.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":30,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-18T22:16:20Z","updated\_at\_by\_admin":"2016-04-18T22:16:20Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Tesla","zip":""}},{"project":{"announcement\_on":"2022-08-01","approval\_status":1,"city":"Lokichogio","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Ferndale","contact\_country":"United States","contact\_email":"jrothkop@thezerobase.com","contact\_info\_visible":true,"contact\_name":" Jaron Rothkop","contact\_phone":"+1 (888) 530-9376","contact\_state":"MI","contact\_street\_address":"160 Vester Street","contact\_zip":"48220","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Kenya","created\_at":"2014-01-29T00:23:40Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In August 2013, ZeroBase revealed plans to install microgrid hybrid technology in partnership with Princeton Power Systems, with the intent of managing and updating existing generators, energy storage systems, and solar installations in and around Lokichogio, Kenya.\r\n\r\nA hub of humanitarian efforts in eastern Africa, Lokichogio (or simply Loki, as it is often called) hosts United Nations offices, a hospital run by the International Committee of the Red Cross, and approximately fifty NGOs. Given the region’s rural location near the border of south Sudan, its incorporated NGOs, and the surrounding communities are often reliant on generators for electrical power. Aiming to provide solutions to Loki’s power concerns, ZeroBase was recently awarded a contract to supply hybridized microgrid generation and storage systems for a one-hundred-kilowatt installation in the region, utilizing Princeton Power Systems’ Microgrid technology.\r\n\r\nPrinceton Power Systems (www.princetonpower.com) is a New Jersey-based designer and manufacturer of products for energy storage, conversion, and management. Princeton Power Systems shares ZeroBase’s goal of enabling safe and sustainable energy use through the development of practical technology. While the customer currently has diesel generators, the project will incorporate adding PV, lead acid batteries, and a generator to the Micro-grid system.\r\n\r\nClearwater Industries, Ltd. is also working with ZeroBase in the Lokichogo region. Operating out of Nairobi, Clearwater Industries is a renewable energy company involved in the development, marketing, and distribution of hybrid energy solutions. As a conduit for ZeroBase’s pursuits in Kenya, Clearwater will be offering ZeroBase’s proprietary ReGenerator systems for installation throughout the region. Clearwater is also aiming to provide water filtration in the form of ZeroBase’s UF2500 units: portable ultrafiltration systems capable of purifying over two thousand gallons of water per day. Clearwater has also acquired an H-Series Hybrid power system from ZeroBase, as well as the water filtration systems, for testing and demonstration purposes.","developer":"ZeroBase Energy","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1218,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1218/1218\_kenyan\_microgrid.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1218/thumb\_1218\_kenyan\_microgrid.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1218/partner\_1218\_kenyan\_microgrid.JPG"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":4.2033067,"longitude":34.3546293,"master\_project\_id":null,"name":"Lokichogio Kenya Microgrid - ZeroBase Energy","om\_contractor":"","organization":"ZeroBase Energy","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://zerobaseenergy.com/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Lokichogio","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-22T05:24:50Z","updated\_at\_by\_admin":"2016-04-18T22:36:19Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Brooklyn","commissioning\_on":"2022-11-01","companion":"100 kW Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"cleantech@nycedc.com","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"212.619.5000 (New York City), 888.692.0100 (Long Distance)","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Plaza Construction ","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-29T00:23:41Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"NYCEDC's Brooklyn Army Terminal Smart Grid Demonstration Project, a partnership with Con Edison through the Dept. of Energy, integrates battery storage, solar PV, and building management systems. The system demonstrates the benefits of on-site renewable energy generation coupled with energy storage systems to reduce peak energy demands and offset energy costs. 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Renewables","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"New York","status":"Operational","street\_address":"140 58th S","systems\_integration":"","technology\_classification":"","technology\_type":"Valve Regulated Lead-acid Battery","technology\_type\_l1":"Valve Regulated Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-22T05:45:16Z","updated\_at\_by\_admin":"2016-04-18T22:38:07Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Consolidated Edison Company of New York (Con Edison)","utility\_type":"Investor 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Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1220,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1220/ChinaLake.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1220/thumb\_ChinaLake.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1220/partner\_ChinaLake.JPG"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":35.6507888,"longitude":-117.66173,"master\_project\_id":null,"name":"China Lake Microgrid","om\_contractor":"","organization":"Princeton Power 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States","created\_at":"2014-01-29T00:23:43Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project is primarily a technology demonstration for grid-services. 209 kWh of lithium ion storage with San Diego Gas and Electric (SDG&E) owned 173 kW solar panel system. The solar installation by Independent Energy Solutions will send its power directly to the local community in Escondido and provides enough clean energy at peak production to power more than 100 homes. The site has an advanced energy storage system (Kokam) through the program to support the electric distribution grid and smart grid deployment plan by smoothing out the intermittency of the solar, as well as peak shaving.\r\n\r\nThe campus also earned a rebate of more than $268,000 through SDG&E's Savings by Design program for the energy efficiency upgrades made during construction reducing usage by more than 700,000 KWh a year and rendering the building 30 percent more efficient than building code requirements.\r\n\r\nPrinceton Power Systems provided power electronics, battery procurement, battery integration and advanced controls.","developer":"Independent Energy Solutions","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1222,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1222/del.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1222/thumb\_del.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1222/partner\_del.png"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.0982635,"longitude":-117.1037774,"master\_project\_id":null,"name":"Del Lago Academy (IES)","om\_contractor":"","organization":null,"owner\_1":"San Diego Gas and Electric","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.sdge.com/newsroom/press-releases/2013-07-08/new-high-school-escondido-beacon-sustainability","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":100,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"1740 Scenic Trail Way","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-03-16T20:44:54Z","updated\_at\_by\_admin":"2015-03-16T20:44:54Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Kokam","zip":"92029"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Fort Bliss","commissioning\_on":"2022-05-16","companion":"120 kW PV Array","construction\_on":null,"contact\_city":"Lawrenceville","contact\_country":"United States","contact\_email":"info@princetonpower.com","contact\_info\_visible":true,"contact\_name":"Darren Hammell","contact\_phone":"(609) 955-5390","contact\_state":"NJ","contact\_street\_address":"3175 Princeton Pike","contact\_zip":"8648","contractor\_1":"Princeton Power Systems","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-29T00:23:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The US Army seeks to make Fort Bliss a net-zero facility for water, energy, and waste by 2018. As part of the energy component, Lockheed Martin was contracted in 2010 to deliver a microgrid system.\r\n\r\nPrinceton Power Systems delivered a containerized system which consists of one 100 kW Grid-tied Inverter (GTIB) and multiple advanced lead-acid batteries, capable of producing 20 kWh’s of energy. In the event of a power outage, the ESS provides enough energy to power the base, thus allowing it to function as an independent energy resource. \r\n\r\nIn addition to seamless transition during grid failure, the ESS also provides valuable support services, including Power Factor Correction and Area Frequency Regulation services to the local electrical system operator while it is connected to the electric grid. It is the ESS’ seamless transition and operational abilities that make it an ideal tool for this project, providing increased reliability and security to Ft. Bliss. \r\n","developer":"Lockheed Martin","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Defense, Environmental Security Technology Certification Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1223,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1223/FortBliss-Aerial.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1223/thumb\_FortBliss-Aerial.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1223/partner\_FortBliss-Aerial.jpg"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":31.8072113,"longitude":-106.4336693,"master\_project\_id":null,"name":"Fort Bliss Microgrid - Lockheed Martin","om\_contractor":"","organization":"Princeton Power Systems","owner\_1":"US Army","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.lockheedmartin.com/us/news/press-releases/2013/may/mfc-051613-us-armyand-LM.html","primary\_reference1":"http://www.princetonpower.com/images/casestudies/pdfs/FortBliss\_CaseStudy\_September2015.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"On-Site Power","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":300,"size\_kwh":0.333333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":20.0,"state":"Texas","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-08T04:05:16Z","updated\_at\_by\_admin":"2016-04-18T22:43:11Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"El Paso Electric Company","utility\_type":"Investor Owned","vendor\_company":"Princeton Power Systems","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Hackettstown","commissioning\_on":"2022-06-01","companion":"250kWp Roof Mounted Solar PV","construction\_on":null,"contact\_city":"Philadelphia","contact\_country":"United States","contact\_email":"Info@solargridstorage.com","contact\_info\_visible":false,"contact\_name":"Matt McMonagle","contact\_phone":"(215) 352-5369","contact\_state":"PA","contact\_street\_address":"1 GridSTAR Place Philadelphia Navy Yard","contact\_zip":"19112","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-29T00:23:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Solar Grid Storage targets projects ranging from 150kW to 10MW. The PowerFactor™ inverter acts as a standard solar inverter delivering AC power to the building, but is also shared with the PowerFactor™ battery making it available to the grid operator who can call upon it to temporarily charge or discharge the battery to help balance power on the grid balancing to net zero on an hourly basis. The PowerFactor™ system has the additional benefit of allowing the PV system to operate in power outages, something standard PV projects cannot offer.","developer":"Solar Grid Storage, Advanced Solar Products","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1224,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1224/1224\_solargridstorage.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1224/thumb\_1224\_solargridstorage.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1224/partner\_1224\_solargridstorage.jpg"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.8539879,"longitude":-74.8290555,"master\_project\_id":null,"name":"Solar Grid Storage Hackettstown - Solar Grid Storage, Advanced Solar Products","om\_contractor":"","organization":"Solar Grid Storage","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.njspotlight.com/stories/13/09/25/solar-storage-batteries-could-help-shorten-outages-increase-resiliency/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"New Jersey","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-29T02:18:30Z","updated\_at\_by\_admin":"2016-04-18T22:50:36Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Solar Grid Storage","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Denville","commissioning\_on":"2022-06-01","companion":"200kWp Roof Mounted Solar PV","construction\_on":null,"contact\_city":"Philadelphia","contact\_country":"United States","contact\_email":"Info@solargridstorage.com","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"(215) 352-5369","contact\_state":"PA","contact\_street\_address":"1 Gridstar Place, Philadelphia Navy yard","contact\_zip":"19112","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-29T00:23:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Solar Grid Storage targets projects ranging from 150kW to 10MW. The PowerFactor™ inverter acts as a standard solar inverter delivering AC power to the building, but is also shared with the PowerFactor™ battery making it available to the grid operator who can call upon it to temporarily charge or discharge the battery to help balance power on the grid balancing to net zero on an hourly basis. The PowerFactor™ system has the additional benefit of allowing the PV system to operate in power outages, something standard PV projects cannot offer.","developer":"Solar Grid Storage, Advanced Solar Products","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1225,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1225/1224\_solargridstorage.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1225/thumb\_1224\_solargridstorage.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1225/partner\_1224\_solargridstorage.jpg"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.8923212,"longitude":-74.4773775,"master\_project\_id":null,"name":"Solar Grid Storage Denville - Solar Grid Storage, Advanced Solar Products","om\_contractor":"","organization":"Solar Grid Storage","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.njspotlight.com/stories/13/09/25/solar-storage-batteries-could-help-shorten-outages-increase-resiliency/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"New Jersey","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-29T02:23:35Z","updated\_at\_by\_admin":"2016-04-18T22:49:20Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Solar Grid Storage","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Philadelphia","commissioning\_on":"2022-04-01","companion":"","construction\_on":null,"contact\_city":"Philadelphia","contact\_country":"United States","contact\_email":"contact.us@smartenergyacademy.org","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"484-679-6449","contact\_state":"PA","contact\_street\_address":"1200 Normandy Place, The Navy Yard","contact\_zip":"19112","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-29T00:23:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Solar Grid Storage installed a PowerFactor250™ system within this demonstration microgrid project and continues to operate and maintain the system, which came online in April 2013. Penn State University runs the GridSTAR center whose mission is to empower regional stakeholders through the integration of renewables and advanced technologies such as energy storage and electric vehicle charging. This microgrid provides an immersive learning environment through educational activities and business partnerships. Utilities, grid operators, manufacturers, installers, policy makers and developers will all gain expertise and experience through this project helping to usher in a more efficient, cost effective, reliable and resilient grid of the future. The PowerFactor250™ system provides critical data serving the GridSTAR mission.","developer":"Solar Grid Storage","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 - RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1226,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1226/Solar\_grid\_Storage\_unit\_2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1226/thumb\_Solar\_grid\_Storage\_unit\_2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1226/partner\_Solar\_grid\_Storage\_unit\_2.jpg"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.8926159,"longitude":-75.172558,"master\_project\_id":null,"name":"PSU GridSTAR Microgrid Test Center - Solar Grid Storage","om\_contractor":"","organization":"DOE GridSTAR Center - Pennsylvania State University","owner\_1":"Penn State University","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://smartenergyacademy.psu.edu/gridstar//grid-energy-storage-pilot-system-deployed-navy-yard","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"Penn State University","research\_institution\_link":"https://smartenergyacademy.psu.edu/","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Pennsylvania","status":"Operational","street\_address":"1200 Normandy Place, The Navy Yard","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-29T02:29:08Z","updated\_at\_by\_admin":"2014-06-30T17:41:18Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Solar Grid Storage","zip":"19112"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Laurel","commissioning\_on":"2022-10-01","companion":"402 kWp Solaire Generation Parking Canopy","construction\_on":null,"contact\_city":"Philadelphia","contact\_country":"United States","contact\_email":"info@solargridstorage.com","contact\_info\_visible":false,"contact\_name":"Matt McMonagle","contact\_phone":"(215) 352-5369","contact\_state":"PA","contact\_street\_address":"1 Gridstar Place, Philadelphia Navy Yard","contact\_zip":"19112","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":2500000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-29T00:23:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The 402 kW system is estimated to generate 20 percent of the building's annual electricity. The carport structure covers a large parking lot which includes two electric vehicle charging stations and infrastructure for four additional stations. Integrated with the solar PV array is an advanced lithium ion energy storage system with a total capacity of 300 kWh. The system, developed and designed by Standard Solar with project subcontractor Solar Grid Storage, was the winner of a $250,000 grant from the Maryland Energy Administration \"Game Changer\" program.","developer":"Solar Grid Storage, Standard Solar","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":250000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Maryland Energy Administration \"Game Changer\"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1227,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1227/1227\_Konterra.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1227/thumb\_1227\_Konterra.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1227/partner\_1227\_Konterra.jpg"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.087324,"longitude":-76.897812,"master\_project\_id":null,"name":"Konterra Realty HQ (Laurel) ESS","om\_contractor":"","organization":"Solar Grid Storage","owner\_1":"Konterra Realty LLC","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://standardsolar.com/about-us/projects/konterra-solar-microgrid-project","primary\_reference1":"http://standardsolar.com/About-Us/News/Press-Releases/4748","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":0.6,"size\_kwh\_hours":0,"size\_kwh\_minutes":36.0,"state":"Maryland","status":"Operational","street\_address":"14401 Sweitzer Ln","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-29T21:40:46Z","updated\_at\_by\_admin":"2016-04-18T22:54:54Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Solar Grid Storage","zip":"20707"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Philadelphia","commissioning\_on":"2022-04-15","companion":"","construction\_on":"2022-01-01","contact\_city":"Philadelphia","contact\_country":"United States","contact\_email":"agillespie@septa.org","contact\_info\_visible":false,"contact\_name":"Andrew Gillespie","contact\_phone":"215-580-8010","contact\_state":"PA","contact\_street\_address":"1234 Market Street","contact\_zip":"19107","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1900000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-29T18:04:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Energy Optimization project is designed to capture energy from rail cars through a regenerative braking process and then utilize the energy for accelerating trains, and to generate revenue through demand-side participation in power markets.\r\n\r\nSaft will provide one Intensium Max 20P Li-ion megawatt energy storage system to capture train braking energy and then discharge it back to the third rail (power rail) to power trains leaving the station. The system will provide regenerative braking charge acceptance for SEPTA trains and power discharge back to the station to support rail traffic while simultaneously participating in the PJM Interconnection market for frequency regulation.\r\n","developer":"Viridity Energy","electronics\_provider":"ABB Envitech, Inc. ","energy\_management\_software\_provider":"","funding\_amount\_1":900000.0,"funding\_amount\_2":1000000.0,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Commercialization Incentive","funding\_source\_2":"Private/Third Party","funding\_source\_3":"","funding\_source\_details\_1":"PEDA Grant","funding\_source\_details\_2":"Balance \"on loan\" paid off through market revenue sharing","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1234,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1234/SEPTA\_picture.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1234/thumb\_SEPTA\_picture.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1234/partner\_SEPTA\_picture.jpg"}},"integrator\_company":"ABB Envitech, Inc. ","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"PJM","latitude":39.9866038,"longitude":-75.1296885,"master\_project\_id":null,"name":"SEPTA Recycled Energy and Optimization Project - Viridity Energy","om\_contractor":"Southeastern Pennsylvania Transportation Authority (SEPTA)","organization":"Southeastern Pennsylvania Transportation Authority (SEPTA)","owner\_1":"Southeastern Pennsylvania Transportation Authority (SEPTA)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"6/16/14 - Results achieved to date show that the single substation system on the Market-Frankford Line in North Philadelphia generates over $250,000 of annual energy savings and earned revenues. The initiative supports SEPTA’s Sustainability Program goal of reducing energy intensity (energy use per passenger mile) by 10 percent by 2015.","primary\_reference":"http://www05.abb.com/global/scot/scot232.nsf/veritydisplay/421a296a68790f53c1257cfa0040c43f/$file/Septa\_WhitePaper\_V1.pdf","primary\_reference1":"","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":800,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Pennsylvania","status":"Operational","street\_address":"1824 East Letterly Street","systems\_integration":"ABB Envitech, Inc.","technology\_classification":"Electrochemical","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T07:22:54Z","updated\_at\_by\_admin":"2016-04-18T23:08:36Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"PECO","utility\_type":"Public Owned","vendor\_company":"Saft America","zip":"19125"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Bellevue","commissioning\_on":"2022-10-01","companion":"","construction\_on":null,"contact\_city":"Hayward","contact\_country":"United States","contact\_email":"tom.stepien@primuspower.com","contact\_info\_visible":false,"contact\_name":"Tom Stepien","contact\_phone":"510 342 7600","contact\_state":"California","contact\_street\_address":"3697 Trust Way","contact\_zip":"94595","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-01-29T19:18:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Substation-sited storage to defer T&D capacity, increase reliability, and add system flexibility.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":979924.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Bonneville Power Administration","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1236,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.6134732,"longitude":-122.1949967,"master\_project\_id":null,"name":"PSE Bellevue Storage Innovation Project","om\_contractor":"","organization":"Primus Power","owner\_1":"Puget Sound 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Deferral","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":500,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Washington","status":"Operational","street\_address":"10885 NE 4th St.","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-28T19:31:05Z","updated\_at\_by\_admin":"2016-04-18T23:17:13Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Puget Sound Energy","utility\_type":"Investor Owned","vendor\_company":"Primus Power","zip":"98004"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Große Hellmer 1E","commissioning\_on":"2022-01-12","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Christian.Folke@eon-gas-storage.com","contact\_info\_visible":false,"contact\_name":"Christian.Folke","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-01-30T19:24:23Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"1st commercial CAES plant, operational since 1978. The 321-MW plant utilizes nuclear-sourced night-time power for compression and produces peak power during the day via a natural gas turbine. The facility stores the compressed air in two \"\"solution-mined\"\" salt caverns which comprise a total of 310,000 cubic meters. (Water was pumped into and out of a salt deposit to dissolve the salt and form the cavern.) The depth of the caverns is more than 600 m which ensures the stability of the air for several months' storage, and guarantees the specified maximum pressure of 100 bar. One cavern is cycled on a diurnal basis. The second cavern serves as a black start asset if the nearby nuclear power plant unexpectedly goes down.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1245,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1245/Huntorf.PNG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1245/thumb\_Huntorf.PNG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1245/partner\_Huntorf.PNG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":53.1897685,"longitude":8.4099915,"master\_project\_id":null,"name":"Kraftwerk Huntorf","om\_contractor":"","organization":"","owner\_1":"E.ON Kraftwerke GmbH","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"42% round trip efficiency","primary\_reference":"http://www.iphe.net/docs/Events/Seville\_11-12/Workshop/Presentations/Session%201/1.2\_IPHE%20workshop\_Zschocke.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":290000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Elsfleth","status":"Operational","street\_address":"Große Hellmer 1E","systems\_integration":"","technology\_classification":"","technology\_type":"In-ground Natural Gas Combustion Compressed Air","technology\_type\_l1":"In-ground Compressed Air Storage","technology\_type\_l2":"Compressed Air Storage","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-10-25T01:18:23Z","updated\_at\_by\_admin":"2016-04-18T23:31:28Z","updated\_by":null,"updated\_by\_email":null,"utility":"E.ON","utility\_type":"Investor Owned","vendor\_company":"BBC, Alstom","zip":"26931"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Queensland","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"Perth","contact\_country":"Australia","contact\_email":"jabshar@magellan-power.com.au","contact\_info\_visible":true,"contact\_name":"Jolleh Abshar ","contact\_phone":"08 9434 6621 ","contact\_state":"WA","contact\_street\_address":"64 Bushland Ridge Bibra Lake ","contact\_zip":"6163","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2014-01-31T16:27:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This Grid Power Support System (GPSS) energy storage system was designed specifically for the SWER (Single Wire Earth Return) power transmission system. The SWER power lines are used throughout the world, with the network here in Australia being one of the largest, covering 200,000 km and servicing approximately 100,000 rural customers. The SWER power lines were first utilised after WWII because they offered a simple, low cost power solution by supplying power through a single wire and circulating it back via the earth.\r\n\r\nCurrently however, the SWER power line network suffers from poor voltage regulation, poor power factor and overload capability.\r\n\r\nThe GPSS-SWR consists of a single phase rugged IGBT bi-directional inverter, and 100 kWh of Lithium Iron Phosphate batteries. The primary function of GPSS-SWR is voltage regulation, power factor correction, peak current injection (to clear the downstream fuse) and to provide UPS function. The GPSS-SWR was assembled in a 10' container and was supplied to a Queensland utility in 2010.","developer":"","electronics\_provider":"Magellan Power ","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1246,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1246/1DS\_65371.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1246/thumb\_1DS\_65371.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1246/partner\_1DS\_65371.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-20.9175738,"longitude":142.7027956,"master\_project\_id":null,"name":"Magellan GPSS - SWR ","om\_contractor":"","organization":null,"owner\_1":"Ergon Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://magellanpower.com.au/Products/Renewable-Energy-and-Energy-Storage-Systems/Utility-Scale-Energy-Storage","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":25,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Queensland","status":"Operational","street\_address":"Ergon Energy","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-18T23:38:25Z","updated\_at\_by\_admin":"2016-04-18T23:38:25Z","updated\_by":null,"updated\_by\_email":null,"utility":"Ergon Energy ","utility\_type":"Federally Owned","vendor\_company":"Magellan Power ","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Emeryille","commissioning\_on":"2021-12-31","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"jraade@halotechnics.com","contact\_info\_visible":false,"contact\_name":"Dr. Justin Raade","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-02-04T04:19:34Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Halotechnics is developing a high-temperature thermal energy storage system using a new thermal-storage and heat-transfer material: earth-abundant and low-melting-point molten glass. Heat storage materials are critical to the energy storage process. In solar thermal storage systems, heat can be stored in these materials during the day and released at night--when the sun is not out--to drive a turbine and produce electricity. In nuclear storage systems, heat can be stored in these materials at night and released to produce electricity during daytime peak-demand hours. \r\n\r\nHalotechnics new thermal storage material targets a price that is potentially cheaper than the molten salt used in most commercial solar thermal storage systems today. It is also extremely stable at temperatures up to 1200°C--hundreds of degrees hotter than the highest temperature molten salt can handle. Being able to function at high temperatures will significantly increase the efficiency of turning heat into electricity. Halotechnics is developing a scalable system to pump, heat, store, and discharge the molten glass. The company is leveraging technology used in the modern glass industry, which has decades of experience handling molten glass.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":3303719.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"High Energy Advanced Thermal Storage","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1248,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.831316,"longitude":-122.2852473,"master\_project\_id":null,"name":"Halotechnics Advanced Molten Glass for Heat Transfer and Thermal Energy Storage","om\_contractor":"","organization":null,"owner\_1":"Halotecnics","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://arpa-e.energy.gov/?q=slick-sheet-project/molten-glass-thermal-storage","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":5,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Heat Thermal Storage","technology\_type\_l1":"Heat Thermal Storage","technology\_type\_l2":"Heat Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2016-04-18T23:42:48Z","updated\_at\_by\_admin":"2016-04-18T23:42:48Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Halotecnics","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Island Pellworm","commissioning\_on":"2022-09-09","companion":"Schleswig-Holstein Netz AG","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"dieter.haack@sh-netz.com","contact\_info\_visible":false,"contact\_name":"Dieter Haack","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-02-10T02:55:18Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project consists of the installation and operation of different complementary decentral storage technologies with a focus on innovative batteries. There is an integration of flexible loads on household level, central optimization of storage system by means of an energy management system, and analysis and real implementation of future business models with installed storage system. \r\n\r\nThere is a key focus on higher utilization of renewables within the region and more efficient integration into a congested distribution grid. Thus, the project plays an important role for customer interaction, technology acceptance and community collaboration. Lastly, the project led to the development of a storage blueprint in a future decentralized energy system.\r\n\r\nhttp://forschung-energiespeicher.info/en/batteries-in-the-grid/projektliste/project-details/104/Hybrides\_Speichersystem\_basiert\_auf\_Erneuerbaren/","developer":"","electronics\_provider":"Gustav Klein","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Förderinitiative Energiespeicher","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1249,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1249/Pellworm\_1000-800.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1249/thumb\_Pellworm\_1000-800.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1249/partner\_Pellworm\_1000-800.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":54.523474,"longitude":8.671316,"master\_project\_id":null,"name":"SmartRegion Pellworm (Lithium-Ion)","om\_contractor":"","organization":"Schleswig-Holstein Netz AG","owner\_1":"Hansewerk AG","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.smartregion-pellworm.de/home.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":560,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"North Sea","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-24T16:47:09Z","updated\_at\_by\_admin":"2016-04-18T23:50:25Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"E.ON","utility\_type":"Investor Owned","vendor\_company":"SAFT Batteries","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Island Pellworm","commissioning\_on":"2022-09-09","companion":"Schleswig-Holstein Netz AG","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"dieter.haack@sh-netz.com","contact\_info\_visible":false,"contact\_name":"Dieter Haack, SH Netz AG","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-02-10T02:55:20Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project consists of the installation and operation of different complementary decentral storage technologies with a focus on innovative batteries. There is an integration of flexible loads on household level, central optimization of storage system by means of an energy management system, and analysis and real implementation of future business models with installed storage system. \r\n\r\nThere is a key focus on higher utilization of renewables within the region and more efficient integration into a congested distribution grid. Thus, the project plays an important role for customer interaction, technology acceptance and community collaboration. Lastly, the project led to the development of a storage blueprint in a future decentral energy system.\r\n\r\nhttp://forschung-energiespeicher.info/batterie-im-netz/projektliste/projekt-einzelansicht/104/Hybrides\_Speichersystem\_basiert\_auf\_Erneuerbaren/","developer":"","electronics\_provider":"Gildemeister / DMG Mori Seiki","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Förderinitiative Energiespeicher","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1250,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1250/Pellworm\_1000-800.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1250/thumb\_Pellworm\_1000-800.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1250/partner\_Pellworm\_1000-800.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":54.523826,"longitude":8.671203,"master\_project\_id":"1249","name":"SmartRegion Pellworm (Vanadium Redox Flow)","om\_contractor":"","organization":null,"owner\_1":"Hansewerk AG","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"See Link in Description","primary\_reference":"http://www.smartregion-pellworm.de/home.html","primary\_reference1":null,"projected\_lifetime":"25.0","rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":200,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"North Sea","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-18T23:47:17Z","updated\_at\_by\_admin":"2016-04-18T23:47:17Z","updated\_by":null,"updated\_by\_email":null,"utility":"E.ON","utility\_type":"Investor Owned","vendor\_company":"Gildemeister / DMG Mori Seiki","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":2,"city":"Aachen","commissioning\_on":"2022-07-01","companion":"Infrawest","construction\_on":"2022-08-01","contact\_city":"","contact\_country":"","contact\_email":"christian.folke@eon-gas-storage.com","contact\_info\_visible":false,"contact\_name":"Christian Folke, E.ON Innovation Center Energy Storage","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-02-10T02:55:21Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-06-30","desc":"The goal of this collaborative project is the construction and operation of a stationary battery facility with a rated power of 5MW in a specially converted building at RWTH Aachen University in Aachen, Germany. E.ON, SMA, Exide, and RWTH Aachen University are involved in the project as project partners. E.ON New Build & Technology will be responsible for modification and equipping of the building. Lead-acid battery strings will be installed by Exide, and battery inverters will be supplied by SMA. RWTH Aachen will be responsible for technical supervision, scientific research, operation and testing. The battery system will be connected to the local medium voltage grid and used to balance energy supplies. Capacities of up to 5MW will be traded in real-time on the energy market by E.ON Global Commodities over a two year period.","developer":"","electronics\_provider":"SMA","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Federal Ministry for Economic Affairs and Energy (BMWi), Förderinitiative Energiespeicher","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1251,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1251/M5BAT.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1251/thumb\_M5BAT.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1251/partner\_M5BAT.jpg"}},"integrator\_company":"Exide","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":50.7768093,"longitude":6.1345889,"master\_project\_id":null,"name":"M5BAT (Modular Multi-Megawatt Multi-Technology Medium-Voltage Battery Storage)","om\_contractor":"","organization":null,"owner\_1":"RWTH Aachen","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.m5bat.de","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":5000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"North Rhine-Westphalia","status":"De-Commissioned","street\_address":"Hüttenstr","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-21T22:32:42Z","updated\_at\_by\_admin":"2016-06-21T22:32:42Z","updated\_by":null,"updated\_by\_email":null,"utility":"E.ON","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-02-10","approval\_status":2,"city":"Falkenhagen ","commissioning\_on":null,"companion":"E.ON EDIS (power), Ontras (gas)","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"EIC\_Energy\_Storage@eon.com","contact\_info\_visible":true,"contact\_name":"René Schoof, Thomas Brauer","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-02-10T02:55:22Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"2 MW of power to gas technology demonstrating on a green field the process chain, which involves wind power, electrolyser, gas treatment, gas measurement, hydrogen injection into the gas grid. The gas, maximum 360 m3/h, is sold to the end consumer market. The project will provide experience in building, consenting and market mechanisms. The machinery of the plant is based on state of the art technology.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1252,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1252/1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1252/thumb\_1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1252/partner\_1.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":53.2027563,"longitude":12.2338679,"master\_project\_id":null,"name":"E.ON \"Power to Gas\" Pilot Plant Falkenhagen","om\_contractor":"","organization":null,"owner\_1":"E.ON Energy Storage GmbH","owner\_2":"Swissgas","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.eon.com/en/media/news/press-releases/2014/9/1/eon-power-to-gas-pilot-unit-falkenhagen.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":1000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Brandenburg","status":"Operational","street\_address":"Tannenkoppelweg ","systems\_integration":"","technology\_classification":"","technology\_type":"Hydrogen Storage","technology\_type\_l1":"Hydrogen Storage","technology\_type\_l2":"Hydrogen Storage","technology\_type\_l3":"Hydrogen Storage","updated\_at":"2014-09-08T15:58:34Z","updated\_at\_by\_admin":"2014-09-08T15:58:34Z","updated\_by":null,"updated\_by\_email":null,"utility":"E.ON","utility\_type":"Investor Owned","vendor\_company":"Hydrogenics","zip":""}},{"project":{"announcement\_on":"2022-02-10","approval\_status":2,"city":"Hamburg","commissioning\_on":null,"companion":"E.ON Hanse","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"EIC\_Energy\_Stroage@eon.com","contact\_info\_visible":false,"contact\_name":"René Schoof, Thomas Brauer","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-02-10T02:55:23Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"New developed 1 MW PEM electrolyser being the largest worldwide. The plant is in the market area of E.ON Hanse and feeding hydrogen into the local gas grid of Hamburg. The hydrogen rate will be maximum 265 m3/h.This advanced technology used is in comparison to conventional electrolysers of this size much more compact and considerably more efficient. Additonally, this technology offers better dynamics and overload capabilities.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Nationale Innovationsprogramm Wasserstoff- und Brennstoffzellentechnologie (NIP)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1253,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":53.4748222,"longitude":10.1549789,"master\_project\_id":null,"name":"Power to Gas Plant in Reitbrook","om\_contractor":"","organization":null,"owner\_1":"E.ON Energy Storage GmbH","owner\_2":"SolviCore","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.eon.com/en.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":800,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Hamburg","status":"Contracted","street\_address":"Allermöher Deich","systems\_integration":"","technology\_classification":"","technology\_type":"Hydrogen Storage","technology\_type\_l1":"Hydrogen Storage","technology\_type\_l2":"Hydrogen Storage","technology\_type\_l3":"Hydrogen Storage","updated\_at":"2014-02-10T02:58:47Z","updated\_at\_by\_admin":"2014-02-10T02:56:53Z","updated\_by":null,"updated\_by\_email":null,"utility":"E.ON","utility\_type":"Investor Owned","vendor\_company":"Hydrogenics","zip":""}},{"project":{"announcement\_on":"2022-02-11","approval\_status":2,"city":"Arnhem","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"e.raaijen@alfen.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Netherlands","created\_at":"2014-02-11T01:36:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"A large share of the world's population, around 30%, does not have access to a permanent or effectively functioning electricity connection. Many of these people live in remote areas where it is not technically or economic infeasible to install an electric energy supply. A good solution is to generate the electricity locally using sustainable sources which are abundant in many of the areas in question, in order to establish a local electricity grid. Alfen recently developed the SOPRA system in order to make this possible.\r\n\r\nSOPRA stands for Sustainable Off-grid Power Station for Rural Applications and provides for autonomous energy grids at locations where this was not previously feasible. The basic solution comprises a number of transformers, a battery pack and an advanced regulating system for the batteries, which is very mobile. The solution can therefore be used anywhere in the world. The system pays for itself within only a few years, as it replaces the expenditure on conventional energy sources such as oil and candles. Thanks to these savings in fuel costs, a SOPRA system is the ideal solution for even the poorest of countries.\r\n\r\nThe use of Lithium-ion batteries makes the SOPRA concept 10 times as compact as existing systems, so that the storage technology for approximately 10,000 users fits in a single 20 foot container. The choice for this type of battery also gives the system a long working life, while the batteries can be simply recycled.\r\n\r\nThe system works using solar energy, wind energy or water energy, but also with conventional energy sources as backup. The great advantage is that the sustainably generated energy is stored in the battery pack, rather than being lost. Due to various management and communication systems being integrated in the SOPRA concept, users can pay in a number of ways, consumption can be regulated and the system can be remote controlled. Alfen supplies the SOPRA concept on a turnkey basis, including the sustainable energy generation, the energy storage, the distribution network, the management and service and maintenance.","developer":"","electronics\_provider":"ALFEN","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1254,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"ALFEN","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.9872391,"longitude":5.9511671,"master\_project\_id":null,"name":"SOPRA HAN University","om\_contractor":"","organization":null,"owner\_1":"SOPRA Consortium","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.alfen.com/en/products/text/sopra/35","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"Electric Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":60,"size\_kwh":0.833333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":50.0,"state":"Gelderland","status":"Operational","street\_address":"Ruitenberglaan 26","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-14T22:23:15Z","updated\_at\_by\_admin":"2014-08-12T19:18:19Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Valence Technology","zip":""}},{"project":{"announcement\_on":"2022-02-11","approval\_status":2,"city":"Lelystad","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"e.raaijen@alfen.com","contact\_info\_visible":false,"contact\_name":"Evert Raaijen","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Netherlands","created\_at":"2014-02-11T01:36:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Alfen recently developed the Sustainable Off-grid Power Station for Rural Applications (SOPRA) which provides for autonomous energy grids at locations where this was not previously feasible. The basic solution comprises a number of transformers, a battery pack and an advanced regulating system for the batteries, which is very mobile. The solution can therefore be used anywhere in the world. The system pays for itself within only a few years, as it replaces the expenditure on conventional energy sources such as oil and candles. Thanks to these savings in fuel costs, a SOPRA system is the ideal solution for even the poorest of countries.\r\n\r\nThe use of Lithium-ion batteries makes the SOPRA concept 10 times as compact as existing systems, so that the storage technology for approximately 10,000 users fits in a single 20 foot container. The choice for this type of battery also gives the system a long working life, while the batteries can be simply recycled.\r\n\r\nThe system works using solar energy, wind energy or water energy, but also with conventional energy sources as backup. The great advantage is that the sustainably generated energy is stored in the battery pack, rather than being lost. Due to various management and communication systems being integrated in the SOPRA concept, users can pay in a number of ways, consumption can be regulated and the system can be remote controlled. Alfen supplies the SOPRA concept on a turnkey basis, including the sustainable energy generation, the energy storage, the distribution network, the management and service and maintenance.","developer":"","electronics\_provider":"ALFEN","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1255,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"ALFEN","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":52.5399186,"longitude":5.5624764,"master\_project\_id":null,"name":"SOPRA WUR Farm","om\_contractor":"","organization":null,"owner\_1":"SOPRA Consortium","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.alfen.com/en/products/text/sopra/35","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":60,"size\_kwh":2.65,"size\_kwh\_hours":2,"size\_kwh\_minutes":39.0,"state":"Flevoland","status":"Operational","street\_address":"Edelhertweg 1","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-14T22:23:08Z","updated\_at\_by\_admin":"2014-08-12T19:19:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Valence Technology","zip":""}},{"project":{"announcement\_on":"2022-02-11","approval\_status":2,"city":"Hague","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"e.raaijen@alfen.com","contact\_info\_visible":false,"contact\_name":"Evert Raaijen","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Netherlands","created\_at":"2014-02-11T01:36:39Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Alfen recently developed the Sustainable Off-grid Power Station for Rural Applications (SOPRA) system which provides for autonomous energy grids at locations where this was not previously feasible. The basic solution comprises a number of transformers, a battery pack and an advanced regulating system for the batteries, which is very mobile. The solution can therefore be used anywhere in the world. The system pays for itself within only a few years, as it replaces the expenditure on conventional energy sources such as oil and candles. Thanks to these savings in fuel costs, a SOPRA system is the ideal solution for even the poorest of countries.\r\n\r\nThe use of Lithium-ion batteries makes the SOPRA concept 10 times as compact as existing systems, so that the storage technology for approximately 10,000 users fits in a single 20 foot container. The choice for this type of battery also gives the system a long working life, while the batteries can be simply recycled.\r\n\r\nThe system works using solar energy, wind energy or water energy, but also with conventional energy sources as backup. The great advantage is that the sustainably generated energy is stored in the battery pack, rather than being lost. Due to various management and communication systems being integrated in the SOPRA concept, users can pay in a number of ways, consumption can be regulated and the system can be remote controlled. Alfen supplies the SOPRA concept on a turnkey basis, including the sustainable energy generation, the energy storage, the distribution network, the management and service and maintenance.","developer":"","electronics\_provider":"ALFEN","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1256,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"ALFEN","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":52.0704978,"longitude":4.3006999,"master\_project\_id":null,"name":"SOPRA Zero Watt project","om\_contractor":"","organization":null,"owner\_1":"SOPRA Consortium","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.alfen.com/en/products/text/sopra/35","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":60,"size\_kwh":0.833333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":50.0,"state":"Zuid Holland","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-12T19:20:18Z","updated\_at\_by\_admin":"2014-08-12T19:20:18Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Valence Technology","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"La Jolla","commissioning\_on":"2022-01-01","companion":"Soitec CPV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"kmcgrath@maxwell.com","contact\_info\_visible":true,"contact\_name":"Kim McGrath","contact\_phone":"858-503-3351","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Soitec","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1390000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-02-26T19:40:52Z","created\_by\_id":198,"debt\_investor":"","decommissioning\_on":null,"desc":"Maxwell ultracapacitor energy storage system paired to Soitec's concentrated photovoltaic system located on the campus of University of California, San Diego. The energy storage system will demonstrate the technical and economic benefit of PV power output smoothing. The system will also take advantage of other technology advances, including solar forecasting and predictive energy control to maximize the benefit of incorporating ultracapacitor energy storage.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"California Energy Commission","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1257,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1257/ucsd\_maxwell\_ultracapacitors.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1257/thumb\_ucsd\_maxwell\_ultracapacitors.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1257/partner\_ucsd\_maxwell\_ultracapacitors.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.8769207,"longitude":-117.2361478,"master\_project\_id":null,"name":"UCSD - Maxwell Technologies Ultracapacitor Bank","om\_contractor":"","organization":"","owner\_1":"Maxwell Technologies","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.sandia.gov/ess/docs/pr\_conferences/2015/PR%204/2-Torre.pdf","primary\_reference1":"","projected\_lifetime":"2.0","rdd\_status":"Yes","research\_desc":"Public University","research\_institution":"UCSD - University of California San Diego","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Ramping ","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":28,"size\_kwh":0.0833333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":5.0,"state":"California","status":"Operational","street\_address":"9500 Gilman Dr","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical Capacitor","technology\_type\_l1":"Electro-chemical Capacitor","technology\_type\_l2":"Electro-chemical Capacitor","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-15T19:33:36Z","updated\_at\_by\_admin":"2016-09-15T19:33:35Z","updated\_by":null,"updated\_by\_email":null,"utility":"UC San Diego Microgrid","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Maxwell Technologies","zip":"92093"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Yume-shima Island","commissioning\_on":"2022-02-01","companion":"","construction\_on":"2022-04-01","contact\_city":"","contact\_country":"","contact\_email":"vanessa.goldschneider@sumitomocorp.com","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2014-02-26T22:05:59Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Sumitomo Corporation (Head Office: Chuo-ku, Tokyo; President and CEO: Kuniharu Nakamura) has developed and installed the world’s first large-scale power storage system which utilizes used batteries collected from electric vehicles (hereinafter : EV). This commercial scale storage system, built on Yume-shima Island, Osaka, will begin operating in February 2014. Over the next three years, the system will measure the smoothing effect of energy output fluctuation from the nearby “Hikari-no-mori,” solar farm, and will aim to establish a large-scale power storage technology by safely and effectively utilizing the huge quantities of discarded used EV batteries which will become available in the future. This project has been selected as a model project for \"Verification of the battery storage control to promote renewable energy\" for the fiscal year 2013 by the Ministry of the Environment of Japan.\r\n\r\nSumitomo Corporation created the joint venture company, “4R Energy Corporation”, in collaboration with Nissan Motor Co., Ltd. in September 2010, to address the secondary use of EV lithium-ion batteries. The used EV batteries that will be recycled into this large-scale storage system have been recovered and have gone through thorough inspection and maintenance at 4R, to confirm safety and performance. This prototype system (0.6MW/0.4MWh) consists of sixteen used EV batteries.\r\n\r\nBattery Business Development Department General Manager, Norihiko Nonaka said “We are pleased to be a part of such an important verification project that can both utilize used EV batteries, and provide a large-scale power storage facility, which are important issues that need to be addressed for the future of renewable energy.”\r\n\r\nSumitomo will seek new business opportunities which can make use of the highly economical storage system, as well as work on developing new applications for used EV batteries. The company aims to actively promote this approach, which can both contribute to expanding the use of EV and encourage the use of renewable energy. Sumitomo is willing to participate in the movement toward lowering the carbon footprint of a sustainable society.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1258,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.6937378,"longitude":135.5021651,"master\_project\_id":null,"name":"Sumitomo EV Battery","om\_contractor":"","organization":"Sumitomo","owner\_1":"Sumitomo","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.sumitomocorp.co.jp/english/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":600,"size\_kwh":0.666666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":40.0,"state":"Osaka","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-24T02:17:18Z","updated\_at\_by\_admin":"2014-04-16T20:44:18Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Portugal","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info.voithhydro@voith.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Portugal","created\_at":"2014-02-27T23:41:49Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"EDP is currently one of the largest utility companies in Portugal with 1.3 GW of operational hydro power. EDP currently has an additional 1.4 GW under construction, a majority of which is scheduled to come online in 2015. 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Two new hydropower dams, Baixo Sabor Montante (upstream) and Jusante (downstream) were constructed 9.6 km apart along the Sabor River near Torre de Moncorvo, Portugal. These dams, each equipped with 2 Francis turbines designed by Andritz Hydro for Energias de Portugal (EDP), will be installed and operational by the end of 2016. The total installation is estimated to produce 444 GWh per year.\r\n\r\nhttp://lmh.epfl.ch/page-104525-en.html\r\n\r\nhttp://www.eln.gov.br/opencms/export/sites/eletronorte/seminarioTecnico/apresentacoesTecnicas/Ap\_07.01\_Aloisx\_Michael\_Andritz\_Benefits\_of\_var\_speed.pdf","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1260,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1260/baixo\_sabor\_montante.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1260/thumb\_baixo\_sabor\_montante.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1260/partner\_baixo\_sabor\_montante.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.399872,"longitude":-8.224454,"master\_project\_id":null,"name":"Baixo Sabor Montante Pumped Hydro Station - EDP","om\_contractor":"","organization":null,"owner\_1":"Energias de Portugal (EDP)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.a-nossa-energia.edp.pt/centros\_produtores/info\_tecnica.php?item\_id=1&cp\_type=&section\_type=info\_tecnica","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":145000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Portugal","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-16T20:33:40Z","updated\_at\_by\_admin":"2016-05-16T20:33:40Z","updated\_by":null,"updated\_by\_email":null,"utility":"Energias de Portugal (EDP)","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Portugal","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Alois.Lechner@andritz.com ","contact\_info\_visible":false,"contact\_name":"Alois Lechner","contact\_phone":"Mobile: +43 664 8330948","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Portugal","created\_at":"2014-02-27T23:41:51Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"EDP is currently one of the largest utility companies in Portugal. Two new hydropower dams, Baixo Sabor Montante (upstream) and Jusante (downstream) were constructed 9.6 km apart along the Sabor River near Torre de Moncorvo, Portugal. These dams, each equipped with 2 Francis turbines designed by Andritz Hydro for Energias de Portugal (EDP), will be installed and operational by the end of 2016. The total installation is estimated to produce 444 GWh per year.\r\n\r\nhttp://lmh.epfl.ch/page-104525-en.html\r\n\r\nhttp://www.eln.gov.br/opencms/export/sites/eletronorte/seminarioTecnico/apresentacoesTecnicas/Ap\_07.01\_Aloisx\_Michael\_Andritz\_Benefits\_of\_var\_speed.pdf","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1261,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.399872,"longitude":-8.224454,"master\_project\_id":null,"name":"Baixo Sabor Jusante Pumped Hydro Station","om\_contractor":"","organization":null,"owner\_1":"Energias de Portugal (EDP)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.a-nossa-energia.edp.pt/centros\_produtores/info\_tecnica.php?item\_id=1&cp\_type=&section\_type=info\_tecnica","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":37000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Portugal","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-16T20:38:23Z","updated\_at\_by\_admin":"2016-05-16T20:38:23Z","updated\_by":null,"updated\_by\_email":null,"utility":" Energias de Portugal (EDP)","utility\_type":"Investor Owned","vendor\_company":"Andritz Hydro GmbH","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Alijo","commissioning\_on":"2021-12-31","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"info@edpr.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":506900000.0,"cost\_OPEX":null,"country":"Portugal","created\_at":"2014-02-27T23:41:52Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"EDP is currently one of the largest utility companies in Portugal with 1.3 GW of operational hydro power. EDP currently has an additional 1.4 GW under construction, a majority of which is scheduled to come online in 2015. 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EDP currently has an additional 1.4 GW under construction, a majority of which is scheduled to come online in 2015. 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EDP currently has an additional 1.4 GW under construction, a majority of which is scheduled to come online in 2015. 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The pilot aims to find out if it is cheaper to install energy storage technology, than to replace transmission cables, with the project proving the first to be funded by the LCN that places batteries close to customers' homes, rather than at the point of use or at a substation.","developer":"S&C Electric Europe Ltd","electronics\_provider":"S&C Electric Europe Ltd","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1283,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1283/zero-carbon-homes-100x62.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1283/thumb\_zero-carbon-homes-100x62.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1283/partner\_zero-carbon-homes-100x62.jpg"}},"integrator\_company":"S&C Electric Europe Ltd","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.5052553,"longitude":-0.6089137,"master\_project\_id":null,"name":"Slough Zero-Carbon Homes Community Energy Storage","om\_contractor":"S&C Electric Europe Ltd","organization":null,"owner\_1":"Scottish and Southern Energy (SSE)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.businessgreen.com/bg/news/2234037/sse-flicks-switch-on-zero-carbon-home-energy-storage-trial","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":75,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Berkshire","status":"Operational","street\_address":"135 High St, Chalvey, Slough, West Berkshire ","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-06-23T18:58:44Z","updated\_at\_by\_admin":"2014-06-23T18:58:44Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"SL1 2TW"}},{"project":{"announcement\_on":"2022-10-01","approval\_status":1,"city":"Lerwick","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Spencer.Zirkelbach@sandc.com","contact\_info\_visible":false,"contact\_name":"Spencer Zirkelbach","contact\_phone":"773.381.2180","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"S&C Electric Europe Ltd","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2014-03-27T02:53:16Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-05-01","desc":"A 1 MW Sodium Sulfur battery was installed at the Shetland's Lerwick Power Station as a means of smoothing the peak demand and increasing the availability of renewable generation on the islands. However, after fire danger with this type of battery was reviewed, the installation was removed. The site is currently being prepared for a new VLRA battery installation.\r\n\r\nThe contract was awarded to S&C\r\nElectric Europe Ltd (S&C) at the end of September 2010 for the design, supply and installation of a 1 MW,\r\n6 MWh NAS battery energy storage system (BESS). S&C would purchase the battery from an intermediary\r\nJapan Wind Development Co Ltd (JWD) who had procured the NAS battery from manufacturer NGK\r\nInsulators Ltd of Japan (NGK). This would mark the first NAS installation in the UK and only the second in\r\nEurope.\r\n\r\nS&C, along with Ocean Kinetics, Power Systems UK and an engineer from NGK returned to site in May 2013\r\nto commence the removal of the NAS battery system. The working party‟s previous experience of installing\r\nthe modules was beneficial; all modules were quickly and safely removed and packaged securely for transport\r\nback to Japan for sale to another customer. 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The new technology allows to maintain momentary power balance more efficiently.\r\n\r\nKPX said the new technology will provide benefits of improving operation of electric power systems and creating new businesses as it allows thermal power plants to reduce cost factors in regulating frequency.\r\n\r\nAnd, it will enable power generation companies to minimize high-cost LNG-fired power generation by increasing use of low-cost power generation, while avoiding construction of additional power plants needed for securing power reserves. It will also reduce emission of pollutant (yellow plume) and allow companies to reduce consumption of high-priced batteries thanks to ESS-based short cycle service.\r\n\r\nMoreover, it will enable low cost power plant, which is in output cutback operation to regulate frequency, to conduct fixed output operation by 100% by storing power of electric power systems in ESSs when frequency rises and discharging stored power when frequency drops. It is analyzed that companies will be able to drastically reduce power generation costs in this way.\r\n\r\nIn conjunction with 10 companies, including Hyosung, SK Innovation, LG Chem, LSIS, KPX plans to carry forward the project of developing technologies and systems needed for introducing ESS-based frequency regulation service (project title: Development of ESS operating system for regulating frequency of electric power systems and electric power market system) for three years(2013~2016), investing a total of 21.5 billion won (10 billion won by the government and 11.5 billion won by private sector).","developer":"","electronics\_provider":"Hyosung Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1286,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Hyosung Corporation","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.8533747,"longitude":127.7345827,"master\_project\_id":null,"name":"Frequency Regulation ESS","om\_contractor":"","organization":"N/A","owner\_1":"Korea Power Exchange (KPX)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://energy.korea.com/archives/56339","primary\_reference1":"http://www.businesskorea.co.kr/english/news/industry/9744-korea-power-exchange-kpx-starts-build-ess-facilities-frequency-regulation","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":4000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Jeollanam-do","status":"Operational","street\_address":"280 Wolnae-dong","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-27T02:50:39Z","updated\_at\_by\_admin":"2014-08-06T19:09:38Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"SK Innovation","zip":""}},{"project":{"announcement\_on":"2022-03-27","approval\_status":1,"city":"Chuncheon-si","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2014-03-27T06:09:21Z","created\_by\_id":217,"debt\_investor":"","decommissioning\_on":null,"desc":"Hyosung has installed 500 kW/1.6 MWh Li-ion battery energy storage system in Duzon Biz-on Company. It helps building energy management and saving electric charges. It could be used as smart grid demand response resource.","developer":"","electronics\_provider":"Hyosung Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1287,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1287/IMG\_7660.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1287/thumb\_IMG\_7660.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1287/partner\_IMG\_7660.JPG"}},"integrator\_company":"Hyosung Corporation","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.757948,"longitude":127.6349971,"master\_project\_id":null,"name":"2013 Smart Grid Project for Peak Shifting","om\_contractor":"","organization":"N/A","owner\_1":"Duzon Biz-on","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.carecprogram.org/uploads/events/2017/08-ICT-for-Energy/Presentations/06%20Large-Scale%20Energy%20Storage%20System%20for%20Renewable%20Energy.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Gangwon-do","status":"Operational","street\_address":"720 Sudong-ri, Namsan-myeon","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-28T18:36:39Z","updated\_at\_by\_admin":"2014-08-06T19:24:43Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Seogwipo-si","commissioning\_on":null,"companion":"Wind farm","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"mas.fukumoto@samsung.com","contact\_info\_visible":false,"contact\_name":"Mas Fukumoto, Kim Dae Kyeong (PD, KETEP, Korea) ","contact\_phone":"(404) 797-0972","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2014-03-27T06:37:04Z","created\_by\_id":217,"debt\_investor":"","decommissioning\_on":null,"desc":"Part of an ambitious smart grid project aimed at becoming 100% carbon free, the Jeju Provincial Government contracted Hyosung to construct an off-grid battery system on Gapado Island. Electricity is supplied by numerous wind turbines and a 1 MW (1 MWh) ESS that provides enough power to over 200 residents.","developer":"","electronics\_provider":"Hyosung Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1288,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1288/IMG\_8016.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1288/thumb\_IMG\_8016.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1288/partner\_IMG\_8016.JPG"}},"integrator\_company":"Hyosung Corporation","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.1700179,"longitude":126.271518,"master\_project\_id":null,"name":"Gapado Island, Jeju Smart Grid Project","om\_contractor":"","organization":"","owner\_1":"Jeju Provincial Government","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.esiexpo.in/2014/docs/UHUCE8998H89H3DH89IJD093JJ/International-Policy-Session/Junill%20Yoon.pdf","primary\_reference1":"http://www.jejuweekly.com/news/articleView.html?idxno=3925","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"Jeju Smart Grid will become the world’s largest Smart Grid community that allows the testing of the most advanced Smart Grid technologies and R&D results, as well as the development of business models. A total of 64.5 billion won will be invested between 2009 and 2013. About 10 consortiums in five areas will participate in testing technologies and developing business models.","research\_institution":"Korea Smart Grid Institute","research\_institution\_link":"http://www.smartgrid.or.kr/","service\_use\_case\_1":"Distribution upgrade due to wind","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Jeju-do","status":"Operational","street\_address":"Gapa-ri","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-11T04:51:05Z","updated\_at\_by\_admin":"2015-11-13T00:29:56Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Investor Owned","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":"2022-03-27","approval\_status":1,"city":"Jindo-gun","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2014-03-27T06:48:29Z","created\_by\_id":217,"debt\_investor":"","decommissioning\_on":null,"desc":"Hyosung announced the company would supply 1.25MW/3MWh ESS linked with new renewable energy generation systems such as wind power and sunlight in Gasado, located in Jindo-gun, Jeollanam-do.\r\n\r\nThis is part of the independent micro-grid project being run by the Korea Electric Power Research Institute. It has the biggest capacity among all the ESS established in the island regions of Korea. Hyosung plans to complete the work by late August, which will enable a more stable power supply to be delivered to the more than 380 residents of the 160 households of Gasado","developer":"","electronics\_provider":"Hyosung Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1289,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Hyosung Corporation","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.4815801,"longitude":126.0486598,"master\_project\_id":null,"name":"Gasado Island Renewable & Off-grid Integration","om\_contractor":"","organization":"N/A","owner\_1":"Korea Electric Power Research Institute (KEPRI)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.hyosung.com/en/pr/news/view.do?seq=3926","primary\_reference1":"https://www.linkedin.com/pulse/energy-independent-island-gives-glance-clean-way-life-kwon","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Distribution upgrade due to wind","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1250,"size\_kwh":2.66666666666667,"size\_kwh\_hours":2,"size\_kwh\_minutes":40.0,"state":"Jeollanam-do","status":"Operational","street\_address":"Gasado-ri, Jodo-myeon‎ ","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-01T06:37:38Z","updated\_at\_by\_admin":"2014-08-06T19:22:22Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Kokam","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Vierakker","commissioning\_on":"2022-09-01","companion":"PV Array","construction\_on":"2022-08-01","contact\_city":"Nijmegen","contact\_country":"Netherlands","contact\_email":"jdeveth@trinergie.nl","contact\_info\_visible":false,"contact\_name":"Jeroen de Veth","contact\_phone":"+31 (0) 6 23 21 18 62","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Netherlands","created\_at":"2014-03-31T11:45:38Z","created\_by\_id":224,"debt\_investor":"","decommissioning\_on":null,"desc":"A dairy farm with robotic milkers needs electricity virtually all day long. This energy comes from the sun, from solar panels on the roof. The energy is stored in a CellCube FB 10-100 vanadium redox flow storage system which is the size of a small sea container. \r\n\r\nThe photon farmer in Vierakker is a joint project developed by Courage, InnovatieNetzwerk, which was set up by the Dutch Ministry of Agriculture, Nature and food quality LNV. Further participants are Alliander, Trinergie and the province of Gelderland.","developer":"Trinergie, Courage, InnovatieNetzwerk","electronics\_provider":"Gildemeister Energy Solutions","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"Federal/National","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1290,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1290/cellcube-bild-data.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1290/thumb\_cellcube-bild-data.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1290/partner\_cellcube-bild-data.png"}},"integrator\_company":"Trinergie","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":52.1014888,"longitude":6.2429966,"master\_project\_id":null,"name":"Fotonenboer 't Spieker Dairy Farm","om\_contractor":"Trinergie","organization":null,"owner\_1":"'t Spieker Dairy Farm","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Long term performance data will be monitored remotely and will be available in the future.","primary\_reference":"http://www.fotonenboer.nl","primary\_reference1":null,"projected\_lifetime":"5.0","rdd\_status":"No","research\_desc":"Master Thesis","research\_institution":"Eindhoven University of Technology","research\_institution\_link":"www.tue.nl","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":10,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Gelderland","status":"Operational","street\_address":"Heerlerweg 1","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-16T23:35:39Z","updated\_at\_by\_admin":"2016-05-16T23:35:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"Alliander N.V.","utility\_type":"Federally Owned","vendor\_company":"Gildemeister Energy Solutions","zip":"7233 SG"}},{"project":{"announcement\_on":"2022-04-01","approval\_status":1,"city":"Karlsruhe","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Karlsruhe","contact\_country":"Germany","contact\_email":"nina.munzke@kit.edu","contact\_info\_visible":true,"contact\_name":"Nina Munzke","contact\_phone":"0049 721 60828283","contact\_state":"Baden-Wuerttemberg","contact\_street\_address":"Kaiserstrasse 12","contact\_zip":"76131","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-04-01T10:21:32Z","created\_by\_id":225,"debt\_investor":"","decommissioning\_on":null,"desc":"The Karlsruhe Institute of Technology developed and installed an innovative DC-linked pilot storage system at KIT Campus North together with different industry partners. Surplus solar energy can be stored in the li-ion batteries and therefore is available at times of peak load and at night. The KIT-developed central control unit (CCU) represents the higher automation level for long-term and strategic energy flow control, taking into account external variables. The system is self-sufficiently controlled depending on the operator’s load profile and measured system data, and the CCU ensures a smooth operation of the system in order to maximize battery performance.\r\n\r\nSystem components: PV system of 37 kWp, two li-ion batteries of 25 and 50 kW, central control unit (CCU), two DC/DC converters of 25 kW each, DC/AC converter of 250 kW\r\n\r\nDue to its modular design the capacity of the storage system\r\nis expandable up to 2 MWh.","developer":"Karlsruhe Insitute of Technology","electronics\_provider":"Siemens AG","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1291,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1291/20130305-CN-01-005.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1291/thumb\_20130305-CN-01-005.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1291/partner\_20130305-CN-01-005.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":49.0093693,"longitude":8.4117936,"master\_project\_id":null,"name":"DC-Linked Battery Energy Storage System (BESS) - Karlsruhe Institute of Technology","om\_contractor":"","organization":"Karlsruhe Institute of Technology","owner\_1":"Karlsruhe Insitute of Technology","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available. ","primary\_reference":"http://www.competence-e.kit.edu","primary\_reference1":"","projected\_lifetime":"5.0","rdd\_status":"No","research\_desc":"","research\_institution":"Karlsruhe Institute of Technology","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Distribution upgrade due to solar","service\_use\_case\_3":"Distribution upgrade due to wind","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":0.333333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":20.0,"state":"Baden-Wuerttemberg","status":"Operational","street\_address":"Kaiserstrasse 12","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-29T02:41:49Z","updated\_at\_by\_admin":"2014-04-08T17:05:11Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Karlsruhe","utility\_type":"","vendor\_company":"","zip":"76131"}},{"project":{"announcement\_on":"2022-04-01","approval\_status":2,"city":"Karlsruhe","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Karlsruhe","contact\_country":"Germany","contact\_email":"nina.munzke@kit.edu","contact\_info\_visible":true,"contact\_name":"Nina Munzke","contact\_phone":"0049 721 60828283","contact\_state":"Baden-Wuerttemberg","contact\_street\_address":"Kaiserstrasse 12","contact\_zip":"76131","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-04-01T11:30:06Z","created\_by\_id":225,"debt\_investor":"","decommissioning\_on":null,"desc":"The Karlsruhe Institute of Technology developed and installed an innovative AC-linked pilot storage system at KIT Campus North together with industry partners. Surplus solar energy can be stored in the li-ion batteries and therefore is available at times of peak load and at night. The KIT-developed central control unit (CCU) represents the higher automation level for long-term and strategic energy flow control, taking into account external variables. The system is self-sufficiently controlled depending on the operator’s load profile and measured system data, and the CCU ensures a smooth operation of the system in order to maximize battery performance.\r\n\r\nSystem components: PV system of 37 kWp with DC/AC converter, one li-ion battery of 25 kWh, central control unit (CCU), bidirectional DC/AC converter of 30 kW\r\n\r\nDue to its modular design the capacity of the storage system\r\nis expandable.","developer":"Karlsruhe Insitute of Technology","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1292,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1292/20130305-CN-01-005.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1292/thumb\_20130305-CN-01-005.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1292/partner\_20130305-CN-01-005.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":49.0093693,"longitude":8.4117936,"master\_project\_id":"","name":"Battery Energy Storage System (BESS) - AC-Linked System","om\_contractor":"","organization":null,"owner\_1":"Karlsruhe Insitute of Technology","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.competence-e.kit.edu","primary\_reference1":null,"projected\_lifetime":"5.0","rdd\_status":"No","research\_desc":"","research\_institution":"Karlsruhe Institute of Technology","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Distribution upgrade due to solar","service\_use\_case\_3":"Distribution upgrade due to wind","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":30,"size\_kwh":0.833333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":50.0,"state":"Baden-Wuerttemberg","status":"Operational","street\_address":"Kaiserstrasse 12","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-05-21T07:21:36Z","updated\_at\_by\_admin":"2014-04-07T22:04:35Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"76131"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Monroe","commissioning\_on":"2022-07-15","companion":"","construction\_on":null,"contact\_city":"Detroit","contact\_country":"United States","contact\_email":"asgeirssonh@dteenergy.com","contact\_info\_visible":false,"contact\_name":"Haukur Asgeirsson","contact\_phone":"313-235-9371","contact\_state":"Michigan","contact\_street\_address":"One Energy Plaza","contact\_zip":"48226-1221","contractor\_1":"S&C Electric Company","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-04-09T19:18:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This project is designed to demonstrate a proof of concept for aggregated Community Energy Storage Devices in a utility territory. The project is comprised of the following major research objectives: 1) Installation of 20 Community Energy Storage (CES) devices across a utility territory; 2) The installation and use of centralized communication across the service territory; 3) The integration of a renewable resource with energy storage; 4) The creation of algorithms for dispatching CES devices for peak shaving and demand response; 5) The integration and testing of secondary-use electric vehicle batteries; and 6) The use of Energy storage devices to provide ancillary services to the power grid. \r\n\r\nThe CES systems will use a number of battery energy storage units utilizing lithium batteries with the required electronics and energy conditioning devices to locate backup power near to the customer. The energy storage system consist of 20 separate 25 kw (50 kWh) CES units and a 500 kW lithium battery storage device integrated with a PV solar module. At just under 1MW the CES units, coupled with the utility-scale PV and storage devices , will demonstrate peak shaving, demand response, voltage support, and emergency load relief; integration of renewable generation; and islanding during outages.","developer":"DTE Energy","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":4995271.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 - RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"US Department of Energy, Office of Electricity - ARRA Grant","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1294,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1294/dte.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1294/thumb\_dte.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1294/partner\_dte.png"}},"integrator\_company":"S&C Electric Company","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"MISO","latitude":41.910738,"longitude":-83.427436,"master\_project\_id":null,"name":"Community Energy Storage for Grid Support (Residential CES Units) - DTE Energy","om\_contractor":"","organization":"DTE Energy","owner\_1":"DTE Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://energy.gov/sites/prod/files/DTE.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Residential (Reliability)","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":500,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Michigan","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-28T18:20:11Z","updated\_at\_by\_admin":"2015-03-16T20:30:55Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Detroit Edison Energy","utility\_type":"Investor Owned","vendor\_company":"Kokam","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Avalon","commissioning\_on":"2022-07-30","companion":"","construction\_on":"2022-07-01","contact\_city":"","contact\_country":"","contact\_email":"Spencer.Zirkelbach@sandc.com","contact\_info\_visible":false,"contact\_name":"Spencer K. Zirkelbach","contact\_phone":"(773) 381-2180","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"S&C Electric Company","contractor\_2":"","contractor\_3":"","cost\_CAPEX":6108000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-04-09T19:29:49Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The isolated electrical system on Santa Catalina Island has daily load variations from approximately 2 MW in the very early morning to approximately 5 MW in the late afternoon. SCE’s existing diesel generating capacity must be constantly cycled to accommodate the varying system load. One of the major consequences of cycling the diesel generators is operating the units at less-than-optimal Nitrous-Oxide (NOx) emission operating points.\r\n\r\nIn response to diesel engine emission reviews at PBGS, the 2009 SCE-SCAQMD settlement agreement directed SCE to install a 1 MW / 7.2 MWh NGK Insulators sodium-sulfur battery system to help stabilize the generation fluctuations. The battery project was completed in 2013 in partnership with S&C Electric. It provides the necessary energy storage capacity during off-peak periods, and energy supply capacity during on-peak periods, to allow for steady operation of the diesel generators at fixed, minimum emission operating points. Additional benefits include improved system voltage regulation, system stability, and system reliability.","developer":"","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1295,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1295/pw.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1295/thumb\_pw.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1295/partner\_pw.png"}},"integrator\_company":"S&C Electric Company","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.3397913,"longitude":-118.314218,"master\_project\_id":null,"name":"SCE Catalina Island Energy Storage","om\_contractor":"","organization":"S&C Electric Company","owner\_1":"Southern California Edison ","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Operating as expected","primary\_reference":"https://www.sandc.com/globalassets/sac-electric/content-callouts/solutions/edoc\_075872.pdf","primary\_reference1":"https://www.ngk.co.jp/nas/case\_studies/catalina/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"Load Following (Tertiary Balancing)","service\_use\_case\_5":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1000,"size\_kwh":7.2,"size\_kwh\_hours":7,"size\_kwh\_minutes":12.0,"state":"California","status":"Operational","street\_address":"Pebbly Beach Road","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:08:42Z","updated\_at\_by\_admin":"2017-10-23T23:37:59Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":"90704"}},{"project":{"announcement\_on":"2022-05-02","approval\_status":1,"city":"North Cape","commissioning\_on":"2022-02-28","companion":"Wind","construction\_on":"2022-01-01","contact\_city":"North Cape","contact\_country":"Canada","contact\_email":"david.watson@weican.ca","contact\_info\_visible":false,"contact\_name":"David Watson","contact\_phone":" + 1- 902-882-2746","contact\_state":"Prince Edward Island","contact\_street\_address":"21741 Route 12","contact\_zip":"C0B 2B0","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":3000000.0,"cost\_OPEX":null,"country":"Canada","created\_at":"2014-04-09T20:21:15Z","created\_by\_id":1,"debt\_investor":"PEI Energy Corporation","decommissioning\_on":null,"desc":"1 MW Sodium-nickel-chloride Battery being used to integrate electricity from the 10 MW Wind R&D Park located at the over 30 year old Wind Energy Institute of Canada facility.\r\n","developer":"S&C Electric Company","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":1500000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Natural Resources Canada’s Clean Energy Fund","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1299,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1299/1299\_pei\_maritime\_electric.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1299/thumb\_1299\_pei\_maritime\_electric.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1299/partner\_1299\_pei\_maritime\_electric.jpg"}},"integrator\_company":"S&C Electric Company","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.055645,"longitude":-63.995263,"master\_project\_id":null,"name":"Wind Energy Institute of Canada Wind R&D Park and Storage System for Innovation in Grid Integration","om\_contractor":"","organization":"","owner\_1":"Wind Energy Institute of Canada","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.nrcan.gc.ca/energy/funding/current-funding-programs/cef/4979","primary\_reference1":"","projected\_lifetime":"15.0","rdd\_status":"Yes","research\_desc":"","research\_institution":"Wind Energy Institute of Canada","research\_institution\_link":"http://www.weican.ca/","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary 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2B0"}},{"project":{"announcement\_on":"2022-02-28","approval\_status":1,"city":"Julian","commissioning\_on":"2022-06-01","companion":"","construction\_on":"2022-04-01","contact\_city":"","contact\_country":"","contact\_email":"jholmes@semprautilities.com","contact\_info\_visible":false,"contact\_name":"John Holmes","contact\_phone":"858 503 5100","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-04-14T19:53:21Z","created\_by\_id":null,"debt\_investor":"","decommissioning\_on":null,"desc":"Kokam and S&C Electric are supplying a 2.3 MWh lithium ion system for San Diego Gas and Electric's (SDG&E) Julian Substation. The system will be used for islanding and capacity/infrastructure deferral.","developer":"","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1300,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"S&C Electric Company","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.0786552,"longitude":-116.6019637,"master\_project\_id":null,"name":"SDG&E Julian - S&C / Kokam","om\_contractor":"San Diego Gas and Electric","organization":null,"owner\_1":"San Diego Gas and Electric","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.cpuc.ca.gov/NR/rdonlyres/36D1D0D0-9719-4172-BCDB-5723D303A78D/0/SDGE\_StorageApplication.pdf","primary\_reference1":null,"projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1000,"size\_kwh":2.3,"size\_kwh\_hours":2,"size\_kwh\_minutes":18.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-07T19:49:15Z","updated\_at\_by\_admin":"2016-04-07T19:49:15Z","updated\_by":null,"updated\_by\_email":null,"utility":"SDG&E","utility\_type":"Investor Owned","vendor\_company":"Kokam","zip":"92036"}},{"project":{"announcement\_on":"2022-04-23","approval\_status":1,"city":"New York","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Vancouver","contact\_country":"Canada","contact\_email":"astephenson@americanvanadium.com","contact\_info\_visible":true,"contact\_name":"Adam Stephenson","contact\_phone":"604.681.8588 x103","contact\_state":"British Columbia","contact\_street\_address":"Suite 910, 800 West Pender Street","contact\_zip":"V6C 2V6","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-04-25T16:56:19Z","created\_by\_id":null,"debt\_investor":"","decommissioning\_on":null,"desc":"The CellCube is a flow battery. It pumps electrolyte through stacks of electrochemical cells causing flow batteries to be one of the few cost-effective options for storing energy for multiple hours in a row. \r\n\r\nThe CellCube(TM) is a fully commercial energy storage system that has been sold and installed across Europe, Asia and Africa, with more than 60 systems currently in operation at customer sites worldwide. The CellCube(TM) system is modular and can serve loads from 10kW to multi-MWs and, as a flow battery, the system excels at providing multiple hours of energy for long-duration requirements.","developer":"","electronics\_provider":"Gildemeister Energy Solutions and SMA","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1302,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1302/01-cellcube-fb-10-100-3-data.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1302/thumb\_01-cellcube-fb-10-100-3-data.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1302/partner\_01-cellcube-fb-10-100-3-data.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.7045973,"longitude":-74.0130665,"master\_project\_id":null,"name":"Monitor Ventures Inc. (formerly American Vanadium Corp.) MTA CellCube Installation","om\_contractor":"Monitor Ventures Inc. (formerly American Vanadium Corp.)/ Gildemeister Energy Solutions","organization":"Monitor Ventures Inc. (formerly American Vanadium Corp.)","owner\_1":"Monitor Ventures Inc. (formerly American Vanadium Corp.)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://energy.gildemeister.com/en/company/news/american-vanadium-partners-with-nyserda-for-cellcube/270894","primary\_reference1":"https://fuelcellsworks.com/news/american-vanadium-targets-installation-date-of-the-400kwh-cellcube-vanadium/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"New York State Energy Research and Development Authority","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Electric Supply Capacity","service\_use\_case\_5":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":90,"size\_kwh":4.45,"size\_kwh\_hours":4,"size\_kwh\_minutes":27.0,"state":"New York","status":"Operational","street\_address":"2 Broadway","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-03-04T00:58:47Z","updated\_at\_by\_admin":"2014-10-31T19:02:09Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"Federally Owned","vendor\_company":"Gildemeister Energy Solutions","zip":"10004"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Sant'Alberto ","commissioning\_on":null,"companion":"","construction\_on":"2022-04-09","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-05-13T13:37:47Z","created\_by\_id":204,"debt\_investor":"","decommissioning\_on":null,"desc":"A Microgrid storage system, integrating wind turbine TN535 supplied by Tozzi Nord (7 KW) and a PV plant (17 KW), has been installed in Sant'Alberto, Italy, inside a sheep farm and cheese factory. This energy storage system guarantees self-sustaining production and independency of the farm from the grid instability.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1303,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1303/TESS.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1303/thumb\_TESS.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1303/partner\_TESS.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":44.5173435,"longitude":12.1565419,"master\_project\_id":null,"name":"Tozzi Energy Storage System - TESS","om\_contractor":"","organization":null,"owner\_1":"Solar Farm","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.tre-energia.com/accumulo-di-energia.php","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":35,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Ravenna","status":"Operational","street\_address":"via Forello","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-11-07T21:02:30Z","updated\_at\_by\_admin":"2014-11-07T21:02:30Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":"48123 "}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Frankfurt am Main","commissioning\_on":"2022-11-25","companion":"NRM Netzdienste Rhein Main GmbH (power, gas)","construction\_on":"2022-09-02","contact\_city":"München","contact\_country":"Germany","contact\_email":"guenter.walther@thuega.de","contact\_info\_visible":false,"contact\_name":"Dr. Günter Walther","contact\_phone":"+49 (89) 38197 1225","contact\_state":"","contact\_street\_address":"Nymphenburgerstraße 39","contact\_zip":"80335","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":2000000.0,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-05-14T14:54:45Z","created\_by\_id":238,"debt\_investor":"","decommissioning\_on":null,"desc":"13 companies of the Thüga group have combined their know-how and capital in a project platform to jointly invest in the development of power-to-gas storage technology. The focus is on testing the practicality of power-to-gas technology. The companies are confident that long-term this technology has the greatest potential to store excess amounts of renewable energy. To this end, the companies are jointly developing, building and operating a demonstration plant over a number of years (2012 - 2016) in Frankfurt am Main. The plant converts electricity into hydrogen and then stores this in the gas distribution network. Overall, they will invest more than €1.5m. The project is supported by the Hessian Ministry for the Environment, Energy, Agriculture and Consumer Protection. Following the first phase of the project, the participants are considering a second project, which would use hydrogen and carbon dioxide to produce synthetic natural gas to be subsequently stored. \r\nThe project partners include a total of 13 companies from various states: badenova AG & Co. KG, Erdgas Mittelsachsen GmbH, Energieversorgung Mittelrhein GmbH, erdgas schwaben gmbh, ESWE Versorgungs AG, Gasversorgung Westerwald GmbH, Mainova Aktiengesellschaft, Stadtwerke Ansbach GmbH, Stadtwerke Bad Hersfeld GmbH, Thüga Energienetze GmbH, WEMAG AG, e-rp GmbH and Thüga AG, which is acting as project coordinator. ","developer":"ITM Power plc","electronics\_provider":"AEG Power solutions ","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"Federal/National Government – RD&D","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1304,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1304/sto140507thuerPTGmnv016.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1304/thumb\_sto140507thuerPTGmnv016.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1304/partner\_sto140507thuerPTGmnv016.jpg"}},"integrator\_company":"NRM Netzdienste Rhein Main GmbH","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":50.1170757,"longitude":8.7353242,"master\_project\_id":null,"name":"Thüga-Demonstrationsprojekt Strom zu Gas - ITM Power plc","om\_contractor":"NRM Netzdienste Rhein Main GmbH","organization":"Thüga Gruppe","owner\_1":"Thüga Gruppe","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"320 kW","primary\_reference":"https://www.thuega.de/presse/thuega-gruppe-bundesweit-erste-einspeisung-von-wasserstoff-in-gasverteilnetz/","primary\_reference1":"","projected\_lifetime":"3.0","rdd\_status":"Yes","research\_desc":"","research\_institution":"DVGW Research Institute","research\_institution\_link":"http://www.dvgw-ebi.de/","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":320,"size\_kwh":24.0,"size\_kwh\_hours":24,"size\_kwh\_minutes":0.0,"state":"Hessen","status":"Operational","street\_address":"Schielestraße 20a","systems\_integration":"","technology\_classification":"","technology\_type":"Hydrogen Storage","technology\_type\_l1":"Hydrogen Storage","technology\_type\_l2":"Hydrogen Storage","technology\_type\_l3":"Hydrogen Storage","updated\_at":"2018-01-06T08:22:29Z","updated\_at\_by\_admin":"2014-06-03T15:59:28Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Mainova AG","utility\_type":"Investor Owned","vendor\_company":"ITM Power plc","zip":"60314"}},{"project":{"announcement\_on":"2022-03-31","approval\_status":1,"city":"Sunbury","commissioning\_on":"2022-06-20","companion":"","construction\_on":null,"contact\_city":"Broomfield","contact\_country":"United States","contact\_email":"storage@res-americas.com","contact\_info\_visible":true,"contact\_name":"Victor Babbitt","contact\_phone":"303-439-4200","contact\_state":"CO","contact\_street\_address":"11101 W. 120th Ave., Suite 400","contact\_zip":"80021","contractor\_1":"RES America Construction Inc.","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-05-15T18:13:39Z","created\_by\_id":239,"debt\_investor":"","decommissioning\_on":null,"desc":"The system is comprised of a +/-4 MW (8 MW total range) / 2.6MWh lithium battery that provides frequency regulation to the PJM system. The project utilizes lithium iron phosphate, an inherently safe variant of lithium battery chemistry. There are two containers that house batteries weighing approximately 20 tons each, as well as a third container that converts the direct current (DC) output to alternating current (AC) for injection and withdrawal of real power to and from the grid.","developer":"RES America Developments Inc.","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1306,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1306/Battery\_Utility\_of\_Ohio.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1306/thumb\_Battery\_Utility\_of\_Ohio.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1306/partner\_Battery\_Utility\_of\_Ohio.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.261109,"longitude":-82.831654,"master\_project\_id":null,"name":"RES Battery Utility of Ohio","om\_contractor":"RES America Operations Inc.","organization":"RES Americas","owner\_1":"Battery Utility of Ohio, LLC, a subsidiary of Renewable Energy Systems Americas, Inc. (RES Americas)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.res-group.com/en/portfolio/?ProjectID=1553","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":4000,"size\_kwh":0.65,"size\_kwh\_hours":0,"size\_kwh\_minutes":39.0,"state":"Ohio","status":"Operational","street\_address":"12800 Centerburg Road","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T06:26:37Z","updated\_at\_by\_admin":"2015-06-19T02:03:23Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"American Electric Power","utility\_type":"Investor Owned","vendor\_company":"BYD America","zip":"43074"}},{"project":{"announcement\_on":"2022-11-01","approval\_status":2,"city":"Martigny","commissioning\_on":"2022-07-01","companion":"","construction\_on":"2022-01-01","contact\_city":"Lausanne","contact\_country":"Switzerland","contact\_email":"kathryn.toghill@epfl.ch","contact\_info\_visible":true,"contact\_name":"Kathryn Toghill","contact\_phone":"0041 21 693 3162","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Switzerland","created\_at":"2014-05-23T17:01:57Z","created\_by\_id":243,"debt\_investor":"","decommissioning\_on":null,"desc":"In November 2013 the Laboratory of Physical and Analytical Electrochemistry (LEPA) received funding from the Swiss Federal Office of Energy (SFOE) and other project partners to scale-up a dual-circuit redox flow battery to the demonstrator level. Our objective is to adapt a commerical 10 kW redox flow battery with secondary circuits which we will then operate and optimise to generate hydrogen alongside storing electrochemical energy. This approach is designed to complement electrochemical energy storage so as to circumvent the low energy density of the RFBs.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"Private/Third Party RD&D","funding\_source\_3":"State/Provincial/Regional RD&D","funding\_source\_details\_1":"Swiss Federal Office for Energy","funding\_source\_details\_2":"LEPA, EPFL","funding\_source\_details\_3":"Sinergy/City of Martigny","gmaps":true,"hidden":false,"id":1307,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1307/RFB-H2\_1\_.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1307/thumb\_RFB-H2\_1\_.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1307/partner\_RFB-H2\_1\_.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.1148115,"longitude":7.0838614,"master\_project\_id":"","name":"Swiss Dual-Circuit Redox Flow Battery","om\_contractor":"","organization":null,"owner\_1":"EPFL","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://lepa.epfl.ch/RFBdemo","primary\_reference1":null,"projected\_lifetime":"2.0","rdd\_status":"No","research\_desc":"Federal University","research\_institution":"EPFL","research\_institution\_link":"http://www.epfl.ch/","service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":10,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Valais","status":"Operational","street\_address":"Route des Chantons 51","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-06-03T18:01:04Z","updated\_at\_by\_admin":"2014-06-03T18:01:04Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Philadelphia","commissioning\_on":"2022-08-15","companion":"","construction\_on":"2022-11-30","contact\_city":"Philadelphia","contact\_country":"United States","contact\_email":"dmontvydas@septa.org","contact\_info\_visible":false,"contact\_name":"David Montvydas","contact\_phone":"215-580-8010","contact\_state":"Pennsylvania","contact\_street\_address":"1234 Market Street","contact\_zip":"19107","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1800000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-03T19:25:21Z","created\_by\_id":null,"debt\_investor":"","decommissioning\_on":null,"desc":"The Energy Optimization project is designed to capture energy from rail cars through a regenerative braking process and then utilize the energy for accelerating trains, and to generate revenue through demand-side participation in power markets.\r\n\r\nSaft will provide one Intensium Max 20P Li-ion megawatt energy storage system to capture train braking energy and then discharge it back to the third rail (power rail) to power trains leaving the station. The system will provide regenerative braking charge acceptance for SEPTA trains and power discharge back to the station to support rail traffic while simultaneously participating in the PJM Interconnection market for frequency regulation.\r\n\r\nABB is integrating the system with their power electronics.","developer":"Viridity Energy","electronics\_provider":"ABB Envitech, Inc. ","energy\_management\_software\_provider":"","funding\_amount\_1":1440000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 - RD&D","funding\_source\_2":"State/Provincial/Regional Commercialization Incentive","funding\_source\_3":"","funding\_source\_details\_1":"TIGGER Grant, Federal Transit Administration","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1309,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1309/SEPTA\_poster\_\_press\_conf.\_graphic\_2\_.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1309/thumb\_SEPTA\_poster\_\_press\_conf.\_graphic\_2\_.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1309/partner\_SEPTA\_poster\_\_press\_conf.\_graphic\_2\_.png"}},"integrator\_company":"ABB Envitech, Inc. ","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"PJM","latitude":40.0170642,"longitude":-75.0846955,"master\_project\_id":null,"name":"SEPTA Wayside Energy Storage System - Viridity Energy","om\_contractor":"Southeastern Pennsylvania Transportation Authority (SEPTA)","organization":"Southeastern Pennsylvania Transportation Authority (SEPTA)","owner\_1":"Southeastern Pennsylvania Transportation Authority (SEPTA)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.septa.org/sustain/blog/2011/07-06.html","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Transportation Services","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":900,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Pennsylvania","status":"Operational","street\_address":"4701 Griscom St.","systems\_integration":"ABB Envitech, Inc.","technology\_classification":"Electrochemical","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-18T06:18:33Z","updated\_at\_by\_admin":"2015-03-16T19:01:39Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"PECO","utility\_type":"Public Owned","vendor\_company":"Saft America","zip":"19124"}},{"project":{"announcement\_on":"2022-08-12","approval\_status":1,"city":"Rutland","commissioning\_on":"2022-09-01","companion":"2 MW PV","construction\_on":"2022-08-12","contact\_city":"Colchester","contact\_country":"United States","contact\_email":"Josh.Castonguay@GreenMountainPower.com","contact\_info\_visible":false,"contact\_name":"Josh Castonguay, Project Manager GMP","contact\_phone":"(802) 324-8359","contact\_state":"Vermont","contact\_street\_address":"163 Acorn Lane","contact\_zip":"05446","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":2500000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-05T16:10:54Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Mountain Power constructed an innovative new solar project to improve resiliency and safety in communities, by generating clean energy that can be stored and used to power an emergency shelter at Rutland High School during a storm. According to the U.S. Department of Energy, The Stafford Hill Solar Farm is the first project to establish a micro-grid powered solely by solar and battery back-up, with no other fuel source.\r\n\r\nStafford Hill includes 7,700 solar panels that can generate 2 MW of electricity, enough to power about 2,000 homes during full sun, or 365 homes year-round. It also includes 4 MW of battery storage to store solar generation, which will provide many benefits to customers, including allowing the disconnection of an entire circuit from the grid in an emergency and providing critical power for an emergency shelter at the high school.\r\n\r\nThe Stafford Hill Solar Farm is sited at the closed Rutland City landfill, and is the first known solar storage project in the country to repurpose brownfield land once used to bury waste for the siting of renewable energy. ","developer":"Green Mountain Power, Clean Energy States Alliance (CESA)","electronics\_provider":"Dynapower Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"Federal/National American Recovery and Reinvestment Act of 2009 - RD&D","funding\_source\_3":"Private/Third Party","funding\_source\_details\_1":"Vermont Public Services Department","funding\_source\_details\_2":"US Department of Energy, Office of Electricity","funding\_source\_details\_3":"Green Mountain Power","gmaps":true,"hidden":false,"id":1310,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1310/Stafford.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1310/thumb\_Stafford.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1310/partner\_Stafford.jpg"}},"integrator\_company":"Dynapower Corporation","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":43.619416,"longitude":-72.950449,"master\_project\_id":null,"name":"Stafford Hill Solar Farm & Microgrid: Lead Acid","om\_contractor":"","organization":"","owner\_1":"Green Mountain Power","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.greenmountainpower.com/innovative/solar\_capital/stafford-hill-solar-farm/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Resiliency","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":2000,"size\_kwh":1.2,"size\_kwh\_hours":1,"size\_kwh\_minutes":12.0,"state":"Vermont","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T18:57:51Z","updated\_at\_by\_admin":"2016-09-08T16:55:45Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Green Mountain Power","utility\_type":"Public Owned","vendor\_company":"Enersys","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Ajaccio","commissioning\_on":"2022-01-01","companion":"560 kW Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"France","contact\_email":"press@areva.com","contact\_info\_visible":false,"contact\_name":"Alexandre Thebault","contact\_phone":"33 (1) 34 96 12 15","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":28770000.0,"cost\_OPEX":null,"country":"France","created\_at":"2014-06-10T14:25:32Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Jointly developed by AREVA, the Environmental Sciences Laboratory of the University of Corsica Pascal Paoli/CNRS, and the CEA, the project is certified by the Capenergies competitiveness cluster and is co-funded by the government of Corsica, the French State and the European Union.\r\n\r\nSince January 2012, the MYRTE platform has connected photovoltaic solar panels, with an output of 560 kW, to a hydrogen-based storage system. By joining the power grid, this provides a solution to the problem of intermittency and makes it one of the rare installations in the world with this type of coupling.\r\n\r\nThe new Greenenergy Box system also offers greater flexibility for grid operations and gives the research teams at the University of Corsica, in association with the CNRS and the CEA, the opportunity to plan and test various energy management scenarios.","developer":"Areva, Le Centre national de la recherche scientifique/Environmental Sciences Laboratory of the University of Corsica Pascal Paoli, and Commissariat à l'énergie atomique et aux énergies alternatives","electronics\_provider":"Areva","energy\_management\_software\_provider":null,"funding\_amount\_1":6302000.0,"funding\_amount\_2":4110000.0,"funding\_amount\_3":10138000.0,"funding\_source\_1":"Corsica Government","funding\_source\_2":"French State","funding\_source\_3":"European Union","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":null,"hidden":false,"id":1311,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1311/1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1311/thumb\_1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1311/partner\_1.jpg"}},"integrator\_company":"Areva","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.916585,"longitude":8.651733,"master\_project\_id":null,"name":"Univeristy of Corsica MYRTE Test Platform","om\_contractor":"University of Corsica","organization":null,"owner\_1":"Univeristy of Corsica","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.cea.fr/english-portal/news-list/hydrogen-energy-storage-power-ramp-up-at-the-my-136177","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"Plan and test various energy management scenarios","research\_institution":"Le Centre national de la recherche scientifique/Environmental Sciences Laboratory of the University of Corsica Pascal Paoli","research\_institution\_link":"http://www.cnrs.fr/","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":150,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Corsica Island","status":"Operational","street\_address":"Route des Sanguinaires","systems\_integration":"","technology\_classification":"","technology\_type":"Hydrogen Storage","technology\_type\_l1":"Hydrogen Storage","technology\_type\_l2":"Hydrogen Storage","technology\_type\_l3":"Hydrogen Storage","updated\_at":"2016-05-17T00:39:29Z","updated\_at\_by\_admin":"2016-05-17T00:39:29Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Areva","zip":"20000"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Albuquerque","commissioning\_on":"2022-01-01","companion":"CSP Plant, Compact Linear Fresnel Reflector","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"slshind@sandia.gov","contact\_info\_visible":true,"contact\_name":"Subhash L. Shinde","contact\_phone":"(505) 284-2965","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Bridgers &amp; Paxton Consulting Engineers, Inc.","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-10T14:25:33Z","created\_by\_id":1,"debt\_investor":"US Government","decommissioning\_on":null,"desc":"Sandia National Laboratories is a multi-program U.S. laboratory with main facilities in Albuquerque, New Mexico, and Livermore, California. Sandia has major R&D responsibilities in energy and environmental technologies and economic competitiveness, and is host to the National Solar Thermal Test Facility, where a Molten Salt Test Loop (MSTL) was recently commissioned.\r\n \r\nDesigned and built to exacting specifications, Sandia’s MSTL system provides a means to perform accelerated lifetime testing on power plant-size components, reducing start-up risks for newly constructed generation facilities. No other test facility in the world is capable of supporting such extensive, large-scale research.","developer":"Areva, Sandia","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"US Department of Energy","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1312,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1312/2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1312/thumb\_2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1312/partner\_2.jpg"}},"integrator\_company":"Areva, Sandia","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.9635,"longitude":-106.5098,"master\_project\_id":null,"name":"Sandia National Solar Thermal Test Facility Molten Salt Loop","om\_contractor":"Areva","organization":"","owner\_1":"Sandia National Labs","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://energy.sandia.gov/energy/renewable-energy/solar-energy/csp-2/nsttf/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"MSTL system provides a means to perform accelerated lifetime testing on power plant-size components, reducing start-up risks for newly constructed generation facilities","research\_institution":"Sandia National Laboratories National Solar Thermal Test Facility","research\_institution\_link":"http://energy.sandia.gov/?page\_id=1267","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1400,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"New Mexico","status":"Operational","street\_address":"MS 1127","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-01T01:26:07Z","updated\_at\_by\_admin":"2016-05-16T23:45:52Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"Areva","zip":"87185"}},{"project":{"announcement\_on":"2022-04-02","approval\_status":1,"city":"Carrickfergus","commissioning\_on":"2021-12-24","companion":"Coal-Fired Generation Plant","construction\_on":"2022-07-22","contact\_city":"","contact\_country":"United Kingdom","contact\_email":"claire.addison@aes.com","contact\_info\_visible":false,"contact\_name":"Claire Addison","contact\_phone":"+44(0)7734569693","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Scotts Electrical","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2014-06-10T14:54:59Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"AES operates a 10 MW / 5 MWh energy storage system at its Kilroot power station in Northern Ireland. The Advancion Array is the largest battery energy storage facility in the UK and Ireland, and is installed inside Kilroot coal-fired generation plant. It enhances grid reliability by providing fast response ancillary services, such as frequency response, for the All Island Electricity System, which has a high penetration of intermittent onshore wind energy. The system is connected to the System Operator of Northern Ireland (SONI).\r\n\r\nThe array uses more than 53,000 batteries, arranged in 136 separate nodes, and is the first step towards a planned 100 MW energy storage array adjacent to Kilroot.","developer":"AES Energy Storage","electronics\_provider":"Parker Hannifin","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Innovate UK Energy Catalyst","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1318,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1318/1318\_kilroot\_aes.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1318/thumb\_1318\_kilroot\_aes.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1318/partner\_1318\_kilroot\_aes.jpg"}},"integrator\_company":"AES Energy Storage","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"SONI","latitude":54.725289,"longitude":-5.767568,"master\_project\_id":null,"name":"AES Kilroot Advancion Energy Storage Array","om\_contractor":"","organization":"","owner\_1":"AES Kilroot Power Limited","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://aesukireland.com/our-business/energy-storage/kilroot-energy-storage/default.aspx","primary\_reference1":"https://cleantechnica.com/2015/09/21/new-10-mw-storage-plant-opened-feldheim-germany-europes-largest/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":10000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Northern Ireland","status":"Operational","street\_address":"Larne Rd","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-27T23:35:07Z","updated\_at\_by\_admin":"2016-04-29T00:19:38Z","updated\_by":null,"updated\_by\_email":null,"utility":"AES Kilroot Power Limited","utility\_type":"Investor Owned","vendor\_company":"LG Chem","zip":"BT38 7LX"}},{"project":{"announcement\_on":"2022-05-06","approval\_status":1,"city":"Kodiak","commissioning\_on":"2022-06-01","companion":"Wind Turbines, Battery Bank","construction\_on":null,"contact\_city":"Kodiak","contact\_country":"United States","contact\_email":"jrichcreek@kodiak.coop","contact\_info\_visible":false,"contact\_name":"Jennifer Richcreek","contact\_phone":"(907) 486-7704","contact\_state":"Alaska","contact\_street\_address":"PO Box 787","contact\_zip":"99615","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-10T15:03:20Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Kodiak Island operates a renewably-powered, isolated microgrid in Alaska. ABB Microgrids worked closely with Kodiak Electric Association (KEA) to develop and deliver the microgrid solution. KEA, a rural electric cooperative which generates and distributes electrical power in Kodiak, Alaska, uses hydro, wind, battery energy storage, flywheel energy storage and diesel generation sets to produce power for the island.\r\n\r\nThe ABB PowerStore units will provide voltage and frequency support for a new crane to be installed at Kodiak Island’s port facility. They can also extend the life of the battery systems by up to 6 years, and provide renewables integration by helping to manage the intermittencies from a 9 MW wind farm on the island. Longer battery life will improve sustainability of KEA’s power system.\r\n\r\nThe flywheel energy storage consists of two 1 MW ABB PowerStore Grid Stabilization Model PS8 units installed in 2015. KEA refers to these units as the Flywheel Energy Storage System (FESS). ","developer":"ABB, Kodiak Electric Association","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1319,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1319/92654780.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1319/thumb\_92654780.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1319/partner\_92654780.jpg"}},"integrator\_company":"ABB","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":57.7893609,"longitude":-152.3972311,"master\_project\_id":null,"name":"Kodiak ABB PowerStore Flywheels for Microgrid Stability and Harbor Crane Operation","om\_contractor":"","organization":"","owner\_1":"Kodiak Electric Association","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.abb.us/cawp/seitp202/a7d739473e39867885257cd0005d705b.aspx","primary\_reference1":"http://www04.abb.com/global/seitp/seitp202.nsf/0/6da9ed6bdee0675fc1257d51003b4b4b/$file/14\_46\_Kodiak.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":2000,"size\_kwh":0.00333333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.2,"state":"Alaska","status":"Operational","street\_address":"515 East Marine Way","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-11-30T18:52:26Z","updated\_at\_by\_admin":"2016-04-27T01:37:13Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Kodiak Electric Association","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"ABB","zip":"99615"}},{"project":{"announcement\_on":"2022-05-20","approval\_status":1,"city":"Jemalong","commissioning\_on":"2022-01-01","companion":"1.1 MW Concentrated Solar Thermal","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"Australia","contact\_email":"megan.bridge@vastsolar.com","contact\_info\_visible":false,"contact\_name":"Megan Bridge","contact\_phone":"62 0447013444","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":10000000.0,"cost\_OPEX":null,"country":"Australia","created\_at":"2014-06-10T15:03:20Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The 6MWth (1.1.MWe) Jemalong Solar Station pilot plant has been commissioned, with electricity sent to the grid in January 2017 via connection with the Essential Energy electricity distribution system, via the West Jemalong substation. On-site works for this pilot commenced in April 2014. This modular, 3,500 heliostat pilot facility is Australia’s first grid-connected Concentrated Solar Power (CSP) plant with thermal energy storage. Each of its five, small array-modules concentrate solar radiation on a dedicated thermal receiver tower 27 metres in height. The five modules connect to a central thermal energy storage tank, from which the stored thermal energy is passed through a steam generator to make steam for a 1.1MWe turbine and electricity generator.","developer":"Vast Solar","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":5000000.0,"funding\_amount\_2":5000000.0,"funding\_amount\_3":null,"funding\_source\_1":"Australian Renewable Energy Agency","funding\_source\_2":"Private/Third Party Debt","funding\_source\_3":"","funding\_source\_details\_1":"50%","funding\_source\_details\_2":"50%","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1320,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1320/Pilot-2017-1.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1320/thumb\_Pilot-2017-1.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1320/partner\_Pilot-2017-1.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-33.4446398,"longitude":147.7176374,"master\_project\_id":null,"name":"Jemalong Solar Thermal Station - Vast Solar","om\_contractor":"","organization":"","owner\_1":"Vast Solar","owner\_2":"AGCentral Pty Ltd","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.vastsolar.com/portfolio-items/jemalong-solar-station-pilot-1-1mwe/","primary\_reference1":"https://energystoragealliance.com.au/site/wp-content/uploads/2014/12/FINAL-Fact-Sheet-for-Jemalong-JSS-30MW-Community-Consultation-1-12112014.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1100,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"New South Wales","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Heat Thermal Storage","technology\_type\_l1":"Heat Thermal Storage","technology\_type\_l2":"Heat Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-04T03:39:05Z","updated\_at\_by\_admin":"2017-10-23T21:42:59Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Essential Energy","utility\_type":"Public Owned","vendor\_company":"","zip":"2871"}},{"project":{"announcement\_on":"2022-02-18","approval\_status":2,"city":"Isle of Muck","commissioning\_on":"2022-03-01","companion":"Diesel Generator, 6 x 5 kW wind turbines, 33 kW PV array","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"United Kingdom","contact\_email":"steve@windandsun.co.uk","contact\_info\_visible":false,"contact\_name":"Steve Wade","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"SSE Contracting","contractor\_2":"Evance Wind Turbines","contractor\_3":"Senergy Econnect","cost\_CAPEX":1339860.0,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2014-06-10T15:03:21Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Muck is a small island off Scotland with a population of 38 people. Diesel generators and intermittent wind generation has made up the entirety of their power supply until recently. The battery array put in by Wind and Sun, accompanied by a PV array and additional wind turbines, has allowed a renewable-focused micro-grid which will significantly reduce the reliance on diesel power. ","developer":"Wind & Sun LTD, Synergy Scotland","electronics\_provider":"SMA America","energy\_management\_software\_provider":null,"funding\_amount\_1":1339860.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Big Lottery Fund","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"100","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1321,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1321/Isle-of-Muck-Rolls-batteries.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1321/thumb\_Isle-of-Muck-Rolls-batteries.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1321/partner\_Isle-of-Muck-Rolls-batteries.jpg"}},"integrator\_company":"Wind & Sun LTD","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":56.8358124,"longitude":-6.2384325,"master\_project\_id":null,"name":"Isle of Muck Microgrid System","om\_contractor":"Isle of Muck Power Ltd.","organization":null,"owner\_1":"Isle of Muck Community Enterprise Ltd","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.windandsun.co.uk/case-studies/islands-mini-grids/isle-of-muck.aspx#.U35AaPldXXo","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Primary Distribution","size\_kw":45,"size\_kwh":3.66666666666667,"size\_kwh\_hours":3,"size\_kwh\_minutes":40.0,"state":"Highland, Scottland","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-07-31T17:03:55Z","updated\_at\_by\_admin":"2014-07-31T17:03:55Z","updated\_by":null,"updated\_by\_email":null,"utility":"Isle of Muck Power Co Ltd","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Rolls Battery LTD","zip":"PH41 2RP"}},{"project":{"announcement\_on":"2022-06-10","approval\_status":2,"city":"Isle of Rum","commissioning\_on":null,"companion":"45 kW hydro turbines, Back up Diesel generators,","construction\_on":null,"contact\_city":"","contact\_country":"United Kingdom","contact\_email":"steve@windandsun.co.uk","contact\_info\_visible":false,"contact\_name":"Steve Wade","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"SSE Contracting","contractor\_2":"G.G.Mackenzie Contractors Ltd","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2014-06-10T15:03:22Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"A National Nature Reserve, the Isle of Rum contracted Wind & Sun to develop a micro-grid system capable of shifting their well-endowed hydro-generation resources to match peak loads more efficiently. A Sunny Island system was installed, now the system is well balanced, and the back-up diesel generators are automatically controlled by the Sunny Boy inverters. ","developer":"Wind & Sun LTD","electronics\_provider":"SMA America","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1322,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1322/rum.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1322/thumb\_rum.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1322/partner\_rum.jpg"}},"integrator\_company":"Wind & Sun LTD","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":57.0093547,"longitude":-6.2689126,"master\_project\_id":null,"name":"Isle of Rum Microgrid System","om\_contractor":"","organization":null,"owner\_1":"UNK","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.windandsun.co.uk/case-studies/islands-mini-grids/isle-of-rum.aspx#.U35RxfldXXo","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Primary Distribution","size\_kw":45,"size\_kwh":3.66666666666667,"size\_kwh\_hours":3,"size\_kwh\_minutes":40.0,"state":"Highland, Scottland","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-07-31T17:04:13Z","updated\_at\_by\_admin":"2014-07-31T17:04:13Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Rolls Battery LTD","zip":"PH43 4"}},{"project":{"announcement\_on":"2022-01-01","approval\_status":2,"city":"Isle of Eigg","commissioning\_on":"2022-02-01","companion":"32 kW PV system, three hydro generation systems (6 kW, 6 kW &amp; 100 kW) and a 24 kW wind farm","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"United Kingdom","contact\_email":"steve@windandsun.co.uk","contact\_info\_visible":false,"contact\_name":"Steve Wade","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Wind & Sun LTD","contractor\_2":"Scottish Hydro Contracting","contractor\_3":"G.G.Mackenzie Contractors Ltd","cost\_CAPEX":2055000.0,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2014-06-10T15:03:22Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In 2008 Econnect Ventures partnered with the community on Isle of Eigg (population 87) to design and install a 100% renewable-powered micro-grid. The 2 million USD project included PV, hydro, and wind generating stations all linked to a remotely-monitored battery array designed by Wind & Sun LTD. ","developer":"Econnect Ventures, Synergy Scotland","electronics\_provider":"SMA America","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1323,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1323/eigg.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1323/thumb\_eigg.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1323/partner\_eigg.jpg"}},"integrator\_company":"Wind & Sun LTD","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":56.899527,"longitude":-6.141612,"master\_project\_id":null,"name":"Isle of Eigg Electrification Project","om\_contractor":"Eigg Electric Ltd","organization":null,"owner\_1":"Eigg Electric Ltd","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.windandsun.co.uk/case-studies/islands-mini-grids/isle-of-eigg,-inner-hebrides,-scotland.aspx#.U35MFvldXXo","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"Load Following (Tertiary Balancing)","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Primary Distribution","size\_kw":60,"size\_kwh":3.66666666666667,"size\_kwh\_hours":3,"size\_kwh\_minutes":40.0,"state":"Highland, Scottland","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-07-31T17:29:03Z","updated\_at\_by\_admin":"2014-07-31T17:29:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"Eigg Electric Ltd","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Rolls Battery LTD","zip":"PH42"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Horse Island","commissioning\_on":"2022-08-01","companion":"18 kW windfarm","construction\_on":"2022-08-01","contact\_city":"Leominster","contact\_country":"United Kingdom","contact\_email":"info@windandsun.co.uk","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"44 (0) 1568 760671","contact\_state":"Herefordshire","contact\_street\_address":"Humber Marsh","contact\_zip":"HR6 0NR","contractor\_1":"Wind & Sun LTD","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2014-06-10T15:03:23Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"A tiny island of four cottages, Horse Island's residents sought to reduce their reliance on their two diesel generators. In August 2009 the residents contracted Wind & Sun LTD to install a battery bank and 6 wind turbines.","developer":"Aeolus Power, GreenNRG","electronics\_provider":"Aeolus Power","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1324,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1324/Rolls-Batteries-Horse-Island.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1324/thumb\_Rolls-Batteries-Horse-Island.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1324/partner\_Rolls-Batteries-Horse-Island.jpg"}},"integrator\_company":"GreenNRG","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":57.987538,"longitude":-5.344605,"master\_project\_id":null,"name":"Horse Island Microgrid Project","om\_contractor":"","organization":null,"owner\_1":"UNK","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.windandsun.co.uk/case-studies/islands-mini-grids/horse-island.aspx#.U35T1PldXXo","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":12,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Highland, Scottland","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-07-31T17:16:07Z","updated\_at\_by\_admin":"2014-07-31T17:16:07Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Rolls Battery LTD","zip":"IV26 2SY"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Isle of Foula","commissioning\_on":"2022-03-01","companion":"19.2 kW PV Array, 15 kW hydro turbine","construction\_on":"2022-11-01","contact\_city":"Leominster","contact\_country":"United Kingdom","contact\_email":"info@windandsun.co.uk","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"45 (0) 1568 760671","contact\_state":"Herefordshire","contact\_street\_address":"Humber Marsh","contact\_zip":"HR6 0NR","contractor\_1":"Malakoff Ltd","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2014-06-10T15:03:23Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Isle of Foula is inhabited by 25 people and owns the title of Britain's remotest outlying island. Econnect Ventures and Wind & Sun collaborated to redesign the island's electricity grid, linking the hydro, diesel, and PV assets to a battery bank that smooths renewable generation and reduces dependence on diesel fuel. ","developer":"Econnect Ventures","electronics\_provider":"SMA America","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Shetland Islands Council","funding\_source\_2":"Shetland Enterprise","funding\_source\_3":"Highlands and Islands Energy Company","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1325,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1325/foula.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1325/thumb\_foula.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1325/partner\_foula.jpg"}},"integrator\_company":"Wind & Sun LTD","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":60.133812,"longitude":-2.068917,"master\_project\_id":null,"name":"Foula Community Electricity Scheme","om\_contractor":"","organization":null,"owner\_1":"UNK","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.windandsun.co.uk/case-studies/islands-mini-grids/isle-of-foula,-shetland-isles.aspx#.U39WKPldXXo","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":16,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Highland, Scottland","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-07-31T17:15:44Z","updated\_at\_by\_admin":"2014-07-31T17:15:44Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Rolls Battery LTD","zip":"ZE2 9PN"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Flat Holm Island","commissioning\_on":"2022-06-01","companion":"Back up Diesel Generator, 6 kW wind turbine, 2 solar arrays with ~8 kW output","construction\_on":null,"contact\_city":"Leominster","contact\_country":"United Kingdom","contact\_email":"info@windandsun.co.uk","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"45 (0) 1568 760671","contact\_state":"Herefordshire","contact\_street\_address":"Humber Marsh","contact\_zip":"HR6 0NR","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2014-06-10T15:03:23Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Wind & Sun LTD installed the battery/inverter systems, wind turbine and PV arrays in the summer of 2006. The system uses 3 Sunny Island SI-4500 bi-directional inverters connected as a single phase parallel cluster as the heart of the system to combine to give a high quality sine wave inverter with powerful overload capability (total of 13.5kW 30min rating). They include powerful battery chargers that ensures maximum battery lifetimes, energy management controller for loads and generators, and a generator management system. All generation is connected on the AC side with the PV using Sunny Boy inverters and the wind turbine using a Windy Boy, so cable volt losses can be minimised. The Sunny Island cluster is connected to a battery bank rated at 60 VDC 916 Ah (@ C10 rate), comprising 15 x 4V Rolls Solar RB-4KS21PS batteries. This gives a storage capacity of over 27 kWh to 50% depth of discharge.","developer":"Wind &amp; Sun LTD","electronics\_provider":"SMA America","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1326,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1326/Flatholm-Island-Systems.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1326/thumb\_Flatholm-Island-Systems.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1326/partner\_Flatholm-Island-Systems.jpg"}},"integrator\_company":"Wind & Sun LTD","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.377861,"longitude":-3.121944,"master\_project\_id":null,"name":"Flat Holm Microgrid Project","om\_contractor":"","organization":null,"owner\_1":"UNK","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.windandsun.co.uk/case-studies/islands-mini-grids/flat-holm-project,-bristol-channel.aspx#.U39VcPldXXp","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Primary Distribution","size\_kw":5,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Wales","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-06-10T15:31:51Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Rolls Battery LTD","zip":"CF63 1AT"}},{"project":{"announcement\_on":"2022-10-04","approval\_status":1,"city":"Chiaravalle","commissioning\_on":"2022-02-25","companion":"Chiaravalle Substation","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"christian.noce@enel.com","contact\_info\_visible":false,"contact\_name":"Christian Noce, Enel","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-06-10T15:03:24Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The substation is located in Chiaravalle, an area with a high level of variable and intermittent power from renewable energy sources that can cause reverse power flows on the high/medium voltage transformers. The Energy Storage System will be used to control the energy flow between Enel's network and the national grid.","developer":"NEC Energy Solutions, Inc.","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"POI Energy (Interregional Operative Program 2007-2013)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1327,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1327/0201-01.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1327/thumb\_0201-01.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1327/partner\_0201-01.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.679329,"longitude":16.414009,"master\_project\_id":null,"name":"Enel Chiaravalle Substation","om\_contractor":"","organization":"","owner\_1":"Enel Distribuzione S.p.A.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.nec.com/en/press/201404/global\_20140402\_01.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Ramping ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":2000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Calabria","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T17:46:48Z","updated\_at\_by\_admin":"2014-10-29T22:38:48Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Enel","utility\_type":"Investor Owned","vendor\_company":"NEC Energy Solutions, Inc.","zip":"88064"}},{"project":{"announcement\_on":"2022-01-13","approval\_status":0,"city":"Le Port","commissioning\_on":null,"companion":"Solar Farm","construction\_on":null,"contact\_city":"Bagnolet","contact\_country":"France","contact\_email":"jill.ledger@saftbatteries.com","contact\_info\_visible":false,"contact\_name":"Jill Ledger","contact\_phone":"33 1 49 93 17 77","contact\_state":"","contact\_street\_address":"12 rue Sadi Carnot","contact\_zip":"93170","contractor\_1":"Ingeteam","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2014-06-10T15:03:24Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"La Reunion’s grid has reached the limit of its integration capacity for the island’s significant, but intermittent, solar and wind renewables. The Bardzour project will combine the output of a solar PV farm with a Intensium Max+ 20E energy storage unit to inject energy into the grid at a constant power limited to 40 percent of the rated PV power. This will establish solar PV as a predictable and reliable part of the island’s energy mix, with no need for additional backup generation to compensate for the intermittent nature of renewable energy sources.\r\nThe 9 MWh energy storage system will comprise 9 Saft Intensium® Max+ 20E containers. Each container houses 17 racks of Saft’s Synerion® energy storage modules, battery management, thermal management and safety management systems.\r\n","developer":"Akuo Energy","electronics\_provider":"Ingeteam","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1328,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1328/SAFT-38small\_0.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1328/thumb\_SAFT-38small\_0.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1328/partner\_SAFT-38small\_0.png"}},"integrator\_company":"Ingeteam","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-20.949347,"longitude":55.311878,"master\_project\_id":null,"name":"Bardzour Solar Farm and Storage Project","om\_contractor":"","organization":null,"owner\_1":"Akuo Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.saftbatteries.com/press/press-releases/saft-signs-multi-million-euro-energy-storage-contract-la-r%C3%A9union-island","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":4500,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"La Réunion","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-07-25T17:41:17Z","updated\_at\_by\_admin":"2014-07-25T17:36:25Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Saft","zip":"97420"}},{"project":{"announcement\_on":"2022-07-20","approval\_status":1,"city":"Beijing","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-12-01","contact\_city":"","contact\_country":"","contact\_email":"rlin@neces.com","contact\_info\_visible":false,"contact\_name":"Roger Lin","contact\_phone":"(508) 497-7261","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-06-10T15:03:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"A123 Energy Solutions announced that a new 2-megawatt Grid Storage Solution™ for Ray Power Systems Co. Ltd., a Beijing-based energy services company, is now in commercial operation providing frequency regulation services. Located in Beijing, this is A123 Energy Solutions’ first deployment in China in commercial operation. The containerized 53-foot long battery is one of A123’s widely deployed High Rate (HR) Grid Storage Solutions and stabilizes the grid to ensure power quality. \r\n\r\nThe 2MW HR Grid Storage Solution, a high power battery based on A123’s proprietary Nanophosphate® chemistry, is able to serve dual duty – as both a controllable 2MW load as well as a 2MW generator – in essence providing 4MW of ramping capability. Deployed worldwide in revenue service since 2009, the HR Grid Storage Solution forms the bulk of the grid energy storage product line that A123 Energy Solutions has delivered to date.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1329,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1329/a123.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1329/thumb\_a123.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1329/partner\_a123.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.904336,"longitude":116.407342,"master\_project\_id":null,"name":"Ray Power Systems Beijing Frequency Regulation Project","om\_contractor":"Ray Power Systems Co. Ltd.","organization":"","owner\_1":"Ray Power Systems Co. Ltd.","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.businesswire.com/news/home/20140106005636/en/A123-Energy-Solutions-Announces-Commercially-Operating-Grid","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Beijing","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T07:30:44Z","updated\_at\_by\_admin":"2014-07-01T18:10:51Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"A123 (NEC Energy Solutions)","zip":"100000"}},{"project":{"announcement\_on":"2022-01-29","approval\_status":1,"city":"Tohoku","commissioning\_on":null,"companion":"PV Array","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"rlin@neces.com","contact\_info\_visible":false,"contact\_name":"Roger Lin","contact\_phone":"(508) 497-7261","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2014-06-10T15:03:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"A123 Energy Solutions announced today that it will supply, install, and commission a 1MW, 2.8MWh GSS™ to IHI Corporation. IHI Corporation is one of the largest industrial equipment manufacturers in Japan and makes products for a diverse set of markets including aerospace, energy, social infrastructure, and heavy machinery. The GSS is currently in the process of being installed at an IHI factory located in the Tohoku region of Japan. Once operational, the GSS will be used to integrate a large PV solar generation array co-located at the facility and help reduce the factory’s overall load, which will in turn help ease the strain on Japan’s grid which has been in rebuilding mode since the 2011 Eastern Japan earthquake. \r\n\r\nThe Grid Storage Solution™, or GSS, will utilize the company’s Long Duration Grid Battery System (GBS-LD), a standard but flexible grid energy storage unit accommodating configurations that range from as little as 100kW to 4MW. The GBS-LD can be packaged in standardized 20-foot, 40-foot, and 53-foot long containers, custom enclosures, or in pre-existing buildings. Utilizing A123 Systems Nanophosphate® prismatic cell technology, up to 100MW and 100MWh of energy storage can be deployed onto a single acre of land.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1330,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":31.7623756,"longitude":131.0922013,"master\_project\_id":null,"name":"IHI Corporation Tohoku Long Duration A123 System","om\_contractor":"","organization":"A123 (NEC Energy Solutions, Inc.)","owner\_1":"IHI Corporation","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.businesswire.com/news/home/20140129005671/en/A123-Energy-Solutions-Announces-2.8MWh-Grid-Storage","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":2.8,"size\_kwh\_hours":2,"size\_kwh\_minutes":48.0,"state":"Tohoku","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:09:57Z","updated\_at\_by\_admin":"2014-07-16T20:19:25Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"A123 (NEC Energy Solutions, Inc.)","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Grapzow","commissioning\_on":"2022-09-19","companion":"140 MW Wind Farm","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"Canada","contact\_email":"jgonzalez@hydrogenics.com","contact\_info\_visible":false,"contact\_name":"Jose Gonzalez","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-06-10T15:03:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"On September 19th, a 140 MW wind farm in Germany was put into operation with a 1 MW electrolysis system from Hydrogenics. The wind farm is located in the municipality of Grapzow (Mecklenburg-Vorpommern District) and is connected via a new substation to the local 50 Hz, 380 kV high-voltage grid, and will reduce CO2 emission by 250,000 tons per year.\r\n\r\nHydrogenics installed a 1 MW Power-to-Gas system inside a newly constructed building. The unit produces 210 Nm3 of H2 per hour. The plant’s owners have the option to use the hydrogen in an internal combustion engine to produce electricity or inject it directly into the local natural gas grid depending on operational needs. The hydrogen compression and storage system stores up to 27 MWh of energy and dramatically increases the overall efficiency of the wind park by tapping into wind energy which would otherwise be wasted.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Germany Federal Government","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1331,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1331/hydrogenics.gif","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1331/thumb\_hydrogenics.gif"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1331/partner\_hydrogenics.gif"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":53.71199,"longitude":13.291224,"master\_project\_id":null,"name":"Grapzow 140 MW Wind Park with 1 MW Power to Gas System","om\_contractor":"RH2-Werder/Kessin/Altentreptow (RH2-WKA)","organization":"","owner\_1":"UNK","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.hydrogenics.com/about-the-company/news-updates/2013/10/01/140-mw-wind-park-officially-opens-in-germany-with-energy-storage-facility-using-1-mw-power-to-gas-system-from-hydrogenics","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1000,"size\_kwh":27.0,"size\_kwh\_hours":27,"size\_kwh\_minutes":0.0,"state":"Mecklenburg-Vorpommern","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Hydrogen Storage","technology\_type\_l1":"Hydrogen Storage","technology\_type\_l2":"Hydrogen Storage","technology\_type\_l3":"Hydrogen Storage","updated\_at":"2017-12-11T03:15:18Z","updated\_at\_by\_admin":"2016-05-17T00:00:55Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Hydrogenics","zip":"17089"}},{"project":{"announcement\_on":"2022-06-07","approval\_status":1,"city":"Fort Collins","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3232","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-10T20:57:59Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project will address the research, development, and demonstration of a coordinated and integrated system of 3.5 MW of mixed distributed resources in Fort Collins, Colorado to achieve a 20-30 percent peak load reduction on two distribution feeders. These two feeders serve the planned FortZED Jump Start Zone (Ft. Collins Zero Energy District, in which the district creates as much thermal and electrical energy locally as it uses). This project will modernize and transform the electrical distribution system of the City of Fort Collins by reducing distribution feeder peak loads, increasing the penetration of renewables, and delivering improved efficiency and reliability to the grid and resource asset owners. Fort Collins is well positioned to successfully complete this project due to 1) the unique combination of world-class research facilities at Colorado State University, 2) participation of global industry leaders and local entrepreneurs able to commercialize the technology, 3) the City of Fort Collins’ focus on and investments in clean energy as a key pillar of future growth, and 4) the presence of a city-owned utility and extensive community support.\r\n\r\n\r\n\r\nAs a small portion of this project, thermal storage will be installed at the following sites:\r\n\r\n\r\n\r\nSite 1: New Belgium Brewing -- deploys new 200-kW PV arrays with AE inverters; a 292-kW methane-based Gauscor CHP; a 650-kW CAT 3508C methane-based CHP; a 135-kW new thermal storage; and a 160-kW load shedding potentials.\r\n\r\n\r\n\r\nSite 2: City of Fort Collins Facilities -- deploys a 500-kW conventional generator with Woodward controls and Eaton switchgear; a 92-kW thermal storage; a 5-kW PV array; a 62-kW HVAC and DSM; and 2x10kW Ford Escapes (PHEVs).\r\n\r\n\r\n\r\nSite 3: Colorado State University - deploys an 80-kW thermal storage; an 80-kW fan variable speed drives; a 21.6-kW water fountain pumps; a 3.6-kW hot water heater controls; a 6-kW daylight control, and a 950-kW conventional gensets with Woodward controls and Eaton switchgear.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":18101263.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&amp;D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1333,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Spirae","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":40.522734,"longitude":-105.091377,"master\_project\_id":null,"name":"Fort Collins Utilities Four Cities Smart Grid Development Project - Facilities Site ","om\_contractor":"","organization":"Ice Energy","owner\_1":"City of Fort Collins","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://building-microgrid.lbl.gov/fort-collins","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"The project will address the research, development, and demonstration of a coordinated and integrated system of 3.5 MW of mixed distributed resources in Fort Collins, Colorado to achieve a 20-30 percent peak load reduction on two distribution feeders.","research\_institution":"Colorado State University","research\_institution\_link":"http://vpr.colostate.edu/pages/mainpage.htm","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":92,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Colorado","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-11T00:48:22Z","updated\_at\_by\_admin":"2014-07-02T16:55:48Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Fort Collins Utilities Light &amp; Power","utility\_type":"Public Owned","vendor\_company":"Ice Energy","zip":""}},{"project":{"announcement\_on":"2022-06-07","approval\_status":1,"city":"Fort Collins","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3232","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-10T21:02:53Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project will address the research, development, and demonstration of a coordinated and integrated system of 3.5 MW of mixed distributed resources in Fort Collins, Colorado to achieve a 20-30 percent peak load reduction on two distribution feeders. These two feeders serve the planned FortZED Jump Start Zone (Ft. Collins Zero Energy District, in which the district creates as much thermal and electrical energy locally as it uses). This project will modernize and transform the electrical distribution system of the City of Fort Collins by reducing distribution feeder peak loads, increasing the penetration of renewables, and delivering improved efficiency and reliability to the grid and resource asset owners. 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and 2x10kW Ford Escapes (PHEVs).\r\n\r\n\r\n\r\nSite 3: Colorado State University - deploys an 80-kW thermal storage; an 80-kW fan variable speed drives; a 21.6-kW water fountain pumps; a 3.6-kW hot water heater controls; a 6-kW daylight control, and a 950-kW conventional gensets with Woodward controls and Eaton switchgear.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":18101263.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&amp;D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Electricity - ARRA Smart Grid Demonstration Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1334,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Spirae","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":40.5729396,"longitude":-105.0845025,"master\_project\_id":null,"name":"Fort Collins Utilities Four Cities Smart Grid Development Project - CSU Site ","om\_contractor":"","organization":"Ice Energy","owner\_1":"City of Fort Collins","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://building-microgrid.lbl.gov/fort-collins","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"The project will address the research, development, and demonstration of a coordinated and integrated system of 3.5 MW of mixed distributed resources in Fort Collins, Colorado to achieve a 20-30 percent peak load reduction on two distribution feeders.","research\_institution":"Colorado State University","research\_institution\_link":"http://vpr.colostate.edu/pages/mainpage.htm","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":80,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Colorado","status":"Operational","street\_address":"501 University Drive","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-11T00:47:36Z","updated\_at\_by\_admin":"2014-07-02T17:07:14Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Fort Collins Light & Power","utility\_type":"Public Owned","vendor\_company":"Ice Energy","zip":"80523"}},{"project":{"announcement\_on":"2022-02-19","approval\_status":2,"city":"Golden","commissioning\_on":"2022-07-01","companion":"","construction\_on":"2022-07-01","contact\_city":"Vancouver","contact\_country":"Canada","contact\_email":"astephenson@americanvanadium.com","contact\_info\_visible":true,"contact\_name":"Adam Stephenson","contact\_phone":"(604) 681-8588 X 103","contact\_state":"British Columbia","contact\_street\_address":"Suite 910, 800 West Pender Street","contact\_zip":"V6C 2V6","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-15T14:20:02Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"American Vanadium announces that the US Department of Energy’s National Renewable Energy Laboratory (“NREL”) will evaluate and demonstrate the CellCube vanadium redox flow energy storage system at its state-of-the-art testing facility. After the demonstration of the energy storage system at NREL’s facility in Golden, Colorado, the CellCube is designated for sale to a US utility.\r\n\r\n","developer":"","electronics\_provider":"American Vanadium, Gildemeister Energy Solutions","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1335,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1335/AmericanVanadium56.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1335/thumb\_AmericanVanadium56.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1335/partner\_AmericanVanadium56.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.7408399,"longitude":-105.1685277,"master\_project\_id":null,"name":"NREL American Vanadium CellCube Test Site","om\_contractor":"","organization":null,"owner\_1":"Confidential","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://finance.yahoo.com/news/american-vanadium-announces-first-cellcube-141500761.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"NREL is partnering with energy storage company American Vanadium to evaluate and demonstrate the CellCube vanadium redox flow energy storage system across grid-connected and off-grid applications involving long-term storage and balancing of renewables such as solar and wind power. The project ultimately seeks to enable storage of megawatts of grid energy over hours of time.","research\_institution":"National Renewable Energy Laboratory","research\_institution\_link":"http://www.nrel.gov/esi/research\_prototype\_amer\_vanadium.html","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"Electric Supply Capacity","service\_use\_case\_5":"Electric Bill Management","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":20,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Colorado","status":"Operational","street\_address":"15013 Denver W Pkwy","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-10-30T19:49:22Z","updated\_at\_by\_admin":"2014-10-30T19:49:22Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"80401"}},{"project":{"announcement\_on":"2022-09-11","approval\_status":1,"city":"Kihei","commissioning\_on":null,"companion":"","construction\_on":"2022-07-15","contact\_city":"Wright- Patterson AFB","contact\_country":"United States","contact\_email":"james.vital@us.af.mil","contact\_info\_visible":false,"contact\_name":"James Vital","contact\_phone":"937-255-2693","contact\_state":"OH ","contact\_street\_address":"AFRL/APTO","contact\_zip":"45433","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-16T18:37:10Z","created\_by\_id":254,"debt\_investor":"","decommissioning\_on":null,"desc":"The study will demonstrate, validate, and document practical and sustainable AESM concepts and technologies in an operational environment at the Maui High Performance Computing Center (MHPCC). The efforts will assist the Air Force in moving toward Net Zero bases, energy independence, assurance, and security.\r\n\r\n Additionally, the results will inform AESM implementation at Department of Defense (DoD) installations worldwide by providing details of broad-scale capability in providing power quality enhancement, reducing cost of operations, and assuring access to energy for high demand or challenged operations.\r\n\r\n MHPCC is a 32,000-square-foot facility that was selected by AFRL-APTO for the AESM demonstration after evaluating its energy demands, existing and planned alternative energy sources, operational requirements, and its ability to meet Air Force energy efficiency and renewable energy efforts. The facility will be installing roof-mounted solar panels, which will provide insight on storage for excess renewable energy, and instantaneous transition to support an uninterruptable operational environment.\r\n\r\nAESM can utilize grid, wind, generator, or solar power for input in a multitude of operations. Furthermore, the control system and energy storage components can be customized to the unique requirements of each operation.\r\n\r\nThe data and lessons harnessed from the AESM demonstration will determine applicability of the technology to be scalable and transferrable. The results can also serve as a resource for future work in battery technology applications.","developer":"","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1337,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"E2T","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":20.748894,"longitude":-156.439958,"master\_project\_id":null,"name":"RDT&E for Advanced Energy Storage & Management Demonstration for USAF High Energy Demand Operations and Facilities ","om\_contractor":"","organization":"United States Air Force","owner\_1":"US Air Force AFRL-APTO","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://cleantechnica.com/2013/10/21/air-force-pilots-new-solar-power-storage-system/#8i7eWlzyuCWoIBCe.99","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Hawaii","status":"Operational","street\_address":"550 Lipoa Pkwy","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-22T06:15:21Z","updated\_at\_by\_admin":"2014-11-07T21:02:10Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Maui Electric Company (MECO)","utility\_type":"","vendor\_company":"GE Energy Storage","zip":" 96753"}},{"project":{"announcement\_on":"2022-11-07","approval\_status":1,"city":"Regina","commissioning\_on":"2022-04-19","companion":"800 kW Wind Turbine","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"","contact\_email":"ryan.jansen@src.sk.ca","contact\_info\_visible":true,"contact\_name":"Ryan Jansen","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Willms Engineering (Electrical Engineering)","contractor\_2":"Clifton Associates (Civil Engineering)","contractor\_3":"Pentec Energy (Electricians)","cost\_CAPEX":5164319.0,"cost\_OPEX":null,"country":"Canada","created\_at":"2014-06-18T18:31:32Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Saft has been selected by Cowessess First Nation(CFN) to design, produce and install 2 Intensium® Max 20E lithium-ion battery systems as part of the High Wind and Storage Project near the City of Regina, Saskatchewan.\r\n\r\nThe grid‐connected ESS system will help optimize renewable wind power performance by increasing reliability and decreasing volatility by as much as 70 percent over the 15‐year lifespan of the system. The Li‐ion ESS includes a state‐of‐the-art, 400kW Power Conditioning System for use in conjunction with an 800kW utility scale wind turbine.\r\n\r\nCheck out the project video here:\r\nhttps://www.youtube.com/watch?v=UE7varh2VZY\r\n\r\nhttp://tinyurl.com/p5tc4pe\r\n","developer":"Cowessess First Nation","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":2535211.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"Private/Third Party Equity","funding\_source\_3":"Federal/National","funding\_source\_details\_1":"Natural Resources Canada’s Clean Energy Fund","funding\_source\_details\_2":"Cowessess First Nation","funding\_source\_details\_3":"Aboriginal Affairs and Northern Development Canada’s ecoEnergy Fund And Saskatchewan Ministry of Environment’s Go Green Fund","gmaps":true,"hidden":false,"id":1338,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1338/IMG\_7972-1024x682.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1338/thumb\_IMG\_7972-1024x682.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1338/partner\_IMG\_7972-1024x682.jpg"}},"integrator\_company":"Saskatchewan Research Council","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"MISO","latitude":50.41699,"longitude":-104.4642,"master\_project\_id":null,"name":"Regina High Wind and Storage Project - Cowessess First Nation","om\_contractor":"Saskatchewan Research Council, Cowessess First Nation, Saft","organization":"Saskatchewan Research Council","owner\_1":"Cowessess First Nation","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Battery AC-to-AC RTE: 81.5%; Availability to date: 85%; Reduces wind volatility by 78% ","primary\_reference":"http://www.nrcan.gc.ca/energy/funding/current-funding-programs/cef/4983","primary\_reference1":"","projected\_lifetime":"15.0","rdd\_status":"Yes","research\_desc":"","research\_institution":"Saskatchewan Research Council","research\_institution\_link":"http://www.src.sk.ca/","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":400,"size\_kwh":1.86666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":52.0,"state":"Saskatchewan","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-05T03:59:59Z","updated\_at\_by\_admin":"2014-07-03T16:11:01Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"SaskPower","utility\_type":"Public Owned","vendor\_company":"Saft","zip":"S4N 0A6"}},{"project":{"announcement\_on":"2022-09-01","approval\_status":1,"city":"Kailua-Kona","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"Hilo","contact\_country":"United States","contact\_email":"riley.ceria@helcohi.com","contact\_info\_visible":false,"contact\_name":"Riley Ceria","contact\_phone":"(808) 969-0353","contact\_state":"Hawaii","contact\_street\_address":"54 Halekauila St.","contact\_zip":"96720","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-18T20:05:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The battery energy storage system located at the West Hawaii Civic Center is a Saft turnkey energy storage system (ESS) comprised of two Intensium Max 20E containers integrated with a 100 kW Power Conversion System to the Hawaii Electric Light Company (HELCO) to increase the grids' ability to integrate more renewable energy.\r\n\r\nThe project aims to achieve the integration of ever‐increasing amounts of renewable energy. The Hawaii Big Island is already a leader, with more than one‐third of its energy coming from renewable sources.\r\n","developer":"","electronics\_provider":"Saft","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1339,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1339/West-Hawaii-Civic-Center.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1339/thumb\_West-Hawaii-Civic-Center.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1339/partner\_West-Hawaii-Civic-Center.jpg"}},"integrator\_company":"Saft","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":19.6737151,"longitude":-156.0038955,"master\_project\_id":null,"name":"Hawaii Electric Light Company West Hawaii Civic Center ESS","om\_contractor":"","organization":"Hawaii Electric Light Company","owner\_1":"Hawaii Electric Light Company","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.saftbatteries.com/search-results?text=Helco+case+study&submit=Search","primary\_reference1":"","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"NELHA administers the world’s premier energy and ocean technology park. ","research\_institution":"Natural Energy Laboratory of Hawaii Authority (NELHA)","research\_institution\_link":"http://nelha.hawaii.gov/","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Hawaii","status":"Operational","street\_address":"74-5044 Ane Keohokalole Hwy","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-22T06:35:15Z","updated\_at\_by\_admin":"2016-04-07T21:36:31Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Hawaii Electric Light Company","utility\_type":"Investor Owned","vendor\_company":"Saft","zip":"96740"}},{"project":{"announcement\_on":"2022-07-01","approval\_status":1,"city":"Toulouse","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"guy-patrick.debroglie@saftbatteries.com","contact\_info\_visible":true,"contact\_name":"Guy-Patrick de Broglie","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2014-06-18T21:08:29Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Saft will deploy 3 Intensium Max 20M containers as an integral part of an industrial area in the region of Toulouse, France. The project benefits from funds within the framework of the future investment program \"Intelligent electricity networks\" managed by the French energy and environment agency (ADEME) and is coordinated by a company specialized in the design and implementation of electricity and IT systems that belongs to a French group.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1340,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":43.6040202,"longitude":1.4773114,"master\_project\_id":null,"name":"ADEME Intelligent Electricity Networks - Industrial Area Demonstration","om\_contractor":"","organization":"","owner\_1":"Saft","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.saftbatteries.com/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":3300,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Haute-Garonne","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-26T22:16:45Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Saft","zip":"31500"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Grove Port","commissioning\_on":"2022-04-01","companion":"","construction\_on":"2022-04-01","contact\_city":"Lawrenceville","contact\_country":"United States","contact\_email":"info@princetonpower.com","contact\_info\_visible":false,"contact\_name":"Darren Hammell","contact\_phone":"(609) 955-5390","contact\_state":"NJ","contact\_street\_address":"3175 Princeton Pike","contact\_zip":"08648","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-23T16:53:57Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The CERTS Microgrid Concept is an advanced approach for enabling integration of, in principle, an unlimited quantity of DER (e.g., distributed generation (DG), energy storage, etc.) into the electric utility grid. A key feature of a microgrid, is its ability to separate and isolate itself from the utility system, during a utility grid disturbance. This is accomplished via intelligent power electronic interfaces and a single, high-speed, switch which is used for disconnection from the grid and synchronization to the grid. During a disturbance, the DER and corresponding loads can autonomously be separated from the utility’s distribution system, isolating the microgrid’s load from the disturbance (and thereby maintaining high level of service) without harming the integrity of the utility’s electrical system/power grid. Intentional islanding of DER and loads has the potential to provide a higher level of reliability than that provided by the distribution system as a whole. Thus, when the utility grid returns to normal, the microgrid automatically synchronizes and reconnects itself to the grid, in an equally seamless fashion.","developer":"","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1342,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1342/IMG\_3816\_thumb.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1342/thumb\_IMG\_3816\_thumb.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1342/partner\_IMG\_3816\_thumb.JPG"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.8318469,"longitude":-82.9250204,"master\_project\_id":null,"name":"CERTS Microgrid Test Bed ESS","om\_contractor":"","organization":"Princeton Power Systems","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://certs.aeptechlab.com/","primary\_reference1":"http://eta-publications.lbl.gov/sites/default/files/aep-battery-energy-storage-system-report-phase1.pdf","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"The CERTS Microgrid Test Bed is located at American Electric Power (AEP) Company’s Walnut Test Facility, pictured below, and designed to demonstrate the CERTS Microgrid Concept, which is an advanced approach for enabling the integration of multiple distributed energy resources (DER) into an electric utility’s distribution system/power grid.","research\_institution":"Consortium for Electric Reliability Technology Solutions (CERTS)","research\_institution\_link":"http://certs.lbl.gov/","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Ohio","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-25T02:19:50Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"American Electric Power","utility\_type":"Investor Owned","vendor\_company":"GNB Marathon","zip":""}},{"project":{"announcement\_on":"2022-06-23","approval\_status":1,"city":"Irvine","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Irvine","contact\_country":"United States","contact\_email":"bps@apep.uci.edu","contact\_info\_visible":false,"contact\_name":"Brendan P. Shaffer","contact\_phone":"949-824-7302 x11127","contact\_state":"CA","contact\_street\_address":"The Henry Samueli School of Engineering, University of California, Irvine","contact\_zip":"92697","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-23T16:53:58Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"As part of a campus micro-grid, UC Irvine installed a 4.5 million gallon chilled water thermal storage unit to service an average cooling load of 74,400 ton‐hours per day. The unit delivers 60,000 ton-hours of thermal storage, significantly reducing peak demand on campus.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1343,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1343/d.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1343/thumb\_d.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1343/partner\_d.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.6479102,"longitude":-117.8468021,"master\_project\_id":"","name":"UCI Microgrid: Thermal Storage","om\_contractor":"","organization":"","owner\_1":"University of California Irvine","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Tank shifts 65% (avg.) of chilling load to off-peak","primary\_reference":"http://www.energy.ca.gov/research/notices/2015-09-30\_workshop/presentations/03\_UC\_Irvine\_Deployment\_and\_Integration\_of\_Renewables\_at\_UCI\_9-30-15\_Lynwood.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"UC Irvine is hosting one of the country’s largest smart grid demonstration programs, the Irvine Smart Grid Demonstration (ISGD).  ISGD will evaluate various aspects of the future smart grid through a public-private partnership led by Southern California Edison (SCE) and the U.S. Department of Energy with UC Irvine’s Advanced Power and Energy Program as a research partner, and Facilities Management, Campus and Environmental Planning, and Transportation and Distribution Services as partners also.  The ISGD program is comprehensive in that it spans from regional grid intelligence technologies, to the substation and distribution circuit level, down to individual homes that will be outfitted with smart appliances, solar panels, and electric vehicles to help understand how the grid will need to interact with the home of the future.","research\_institution":"Advanced Power and Energy Program","research\_institution\_link":"http://www.apep.uci.edu/","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":6590,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"Central Plant","systems\_integration":"","technology\_classification":"Thermal Storage","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-28T00:34:54Z","updated\_at\_by\_admin":"2014-07-31T21:29:20Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"","zip":"92617"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Devens","commissioning\_on":"2022-07-01","companion":"","construction\_on":null,"contact\_city":"Lawrenceville","contact\_country":"United States","contact\_email":"info@princetonpower.com","contact\_info\_visible":false,"contact\_name":"Darren Hammell","contact\_phone":"(609) 955-5390","contact\_state":"NJ","contact\_street\_address":"3175 Princeton Pike","contact\_zip":"08648","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-23T16:53:58Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Supporting the Department of Defense’ goal to reduce fuel use and logistics, and increase energy security, Princeton Power Systems provided a Ruggedized Energy Storage System (RESS) built around the commercial GTIB-100 Inverter with 82 kWh of lithium-ion batteries and control equipment, all built into one Tricon weatherproof enclosure.","developer":"","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1344,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1344/dd.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1344/thumb\_dd.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1344/partner\_dd.png"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.5370728,"longitude":-71.6174929,"master\_project\_id":null,"name":"Exfob (Tricon) Ft. Devens Military Container","om\_contractor":"Princeton Power Systems","organization":"Princeton Power Systems","owner\_1":"US Army","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"http://www.sandia.gov/ess/publications/SAND2013-6903.pdf","primary\_reference":"http://www.princetonpower.com/images/casestudies/pdfs/ExFOB\_CaseStudy\_September2015.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Load Following (Tertiary Balancing)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Ramping ","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":0.816666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":49.0,"state":"Massachusetts","status":"Operational","street\_address":"37 Quebec St.","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-25T04:56:55Z","updated\_at\_by\_admin":"2015-03-16T20:46:01Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"International Battery","zip":"01434"}},{"project":{"announcement\_on":"2022-09-26","approval\_status":2,"city":"San Diego","commissioning\_on":"2022-11-01","companion":"30 kW PV","construction\_on":"2022-09-01","contact\_city":"San Diego","contact\_country":"United States","contact\_email":"creddy@sandiego.gov","contact\_info\_visible":true,"contact\_name":"Chandra Reddy","contact\_phone":"858-492-6002","contact\_state":"California","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":545000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-23T16:58:32Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The City of San Diego developed a renewable energy and storage system for the Scripps Ranch Community Center. Utilizing funds from the Department of Energy, Solar America Cities and California's Self-Generation Incentive Program, a 30 kW PV array and 100 kWh lithium ion battery was installed. \r\n\r\nPrinceton Power provided an Energy Storage Solution (ESS), for emergency preparedness and access to electricity for residents, comprised of Princeton Power Systems GTIB-100 inverters, a solar array, advanced lithium-ion batteries, and a Princeton Power Sytems Site Controller. \r\n","developer":"City of San Diego","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":200000.0,"funding\_amount\_2":345000.0,"funding\_amount\_3":40000.0,"funding\_source\_1":"Federal/National","funding\_source\_2":"State/Provincial/Regional Commercialization Incentive","funding\_source\_3":"State/Provincial/Regional Commercialization Incentive","funding\_source\_details\_1":"Department of Energy, Solar America Cities","funding\_source\_details\_2":"California Public Utilities Commission, SGIP","funding\_source\_details\_3":"California Solar Initiative","gmaps":true,"hidden":false,"id":1345,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1345/scripps.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1345/thumb\_scripps.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1345/partner\_scripps.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.928679,"longitude":-117.079709,"master\_project\_id":null,"name":"Scripps Ranch Community Center BESS","om\_contractor":"City of San Diego","organization":"","owner\_1":"City of San Diego","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.princetonpower.com/pdfs/scripps\_ranch\_cs.pdf","primary\_reference1":"http://www.cleanegroup.org/ceg-projects/resilient-power-project/featured-installations/scripps-ranch-microgrid/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"11454 Blue Cypress Dr","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-22T17:21:14Z","updated\_at\_by\_admin":"2016-08-22T17:21:14Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Saft","zip":"92131"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Los Angeles","commissioning\_on":"2022-08-01","companion":"Bi-directional EV chargers","construction\_on":"2022-04-01","contact\_city":"Lawrenceville","contact\_country":"United States","contact\_email":"info@princetonpower.com","contact\_info\_visible":false,"contact\_name":"Darren Hammell","contact\_phone":"(609) 955-5390","contact\_state":"NJ","contact\_street\_address":"3175 Princeton Pike","contact\_zip":"08648","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-23T16:58:33Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Vehicle to grid capable car charges. Princeton Power Systems are the system integrator and also provide the EV charging stations","developer":"","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1347,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.0522342,"longitude":-118.2436849,"master\_project\_id":null,"name":"Bi-directional EV Charging Stations, LA","om\_contractor":"","organization":null,"owner\_1":"Confidential","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"n/a","primary\_reference":"http://www.princetonpower.com","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Transportation Services","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":15,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-01T15:07:53Z","updated\_at\_by\_admin":"2014-08-01T15:07:22Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Nissan","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Various","commissioning\_on":null,"companion":"PV","construction\_on":"2022-10-01","contact\_city":"Lawrenceville","contact\_country":"United States","contact\_email":"info@princetonpower.com","contact\_info\_visible":true,"contact\_name":"Darren Hammell","contact\_phone":"(609) 955-5390","contact\_state":"NJ","contact\_street\_address":"3175 Princeton Pike","contact\_zip":"08648","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-23T16:58:33Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Princeton Power Systems was chosen for the energy conversion system feature set and capabilities. GTIB-100 (6x) - 3 on the battery and 3 on the PV were used.","developer":"","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1348,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"JLM Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.5080818,"longitude":-86.7877958,"master\_project\_id":null,"name":"JLM Energy: Alabama Solar-tied","om\_contractor":"","organization":" Princeton Power Systems","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"n/a","primary\_reference":"http://www.princetonpower.com","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":300,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Alabama","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-08T03:34:10Z","updated\_at\_by\_admin":"2014-08-07T22:22:50Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Kula","commissioning\_on":"2022-10-01","companion":"60 kW Solar PV","construction\_on":"2022-10-01","contact\_city":"Ferndale","contact\_country":"United States","contact\_email":"jrothkop@thezerobase.com","contact\_info\_visible":false,"contact\_name":"Jaron Rothkop","contact\_phone":"+1 (888) 530-9376","contact\_state":"MI","contact\_street\_address":"160 Vester Street","contact\_zip":"48220","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-23T16:58:34Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"ZeroBase worked closely with Ocean Vodka to provide a microgrid; a modular system that integrates power generation, storage, and distribution into a self-contained package. The solution for Ocean Vodka included a 100kW microgrid, 60kW of Solar PV panels, and 600kWh of advanced energy storage.\r\n\r\nMost renewable energy installations are either linked to the public grid or operate entirely off of it; the ZeroBase microgrid is capable of both. Ocean Vodka facilities are powered be solar panels and stored solar energy in the battery, and by the grid when solar resources are insufficient. When the batteries are full the microgrid can sell excess solar power to the utility. In the event of a utility power outage, the microgrid will automatically identify a failure and switch the Ocean Vodka facility to operate exclusively off of solar panels and battery banks. This unique design ensures total power continuity even in blackout conditions.","developer":"ZeroBase Energy, LLC","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1349,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1349/ov.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1349/thumb\_ov.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1349/partner\_ov.jpg"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":20.8180782,"longitude":-156.3869061,"master\_project\_id":null,"name":"ZeroBase Microgrid for Sustainable Manufacturing (Ocean Vodka Production Facility)- ZeroBase Energy, LLC","om\_contractor":"ZeroBase Energy, LLC","organization":"ZeroBase Energy","owner\_1":"Hawaii Sea Spirits, LLC","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"n/a","primary\_reference":"http://zerobaseenergy.com/case-studies/case-study-ocean-vodka/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Residential (Reliability)","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Hawaii","status":"Operational","street\_address":"4051 Omaopio Rd.","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-25T05:08:52Z","updated\_at\_by\_admin":"2014-06-25T16:31:09Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Ojai / K2","zip":"96790"}},{"project":{"announcement\_on":"2022-06-23","approval\_status":0,"city":"Rockville","commissioning\_on":null,"companion":"PV Car-port, EV Charging","construction\_on":null,"contact\_city":"Lawrenceville","contact\_country":"United States","contact\_email":"info@princetonpower.com","contact\_info\_visible":true,"contact\_name":"Darren Hammell","contact\_phone":"(609) 955-5390","contact\_state":"NJ","contact\_street\_address":"3175 Princeton Pike","contact\_zip":"08648","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-23T16:58:35Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"TimberRock has launched a sophisticated software platform for managing both demand-side and supply-side energy assets. This Distributed Energy Management & Aggregation Platform (De-MAP™) capability allows utilities to better integrate and manage distributed generation allowing it to serve as a vital part of their smart grid strategies. Princeton Power Systems provided 3x DRI-10 inverters built into a PV car port with battery to help TimberRock test/develop the software platform.","developer":"","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1352,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1352/DE.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1352/thumb\_DE.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1352/partner\_DE.png"}},"integrator\_company":"TimberRock Energy Solutions Inc.","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.0839973,"longitude":-77.1527578,"master\_project\_id":null,"name":"TimberRock De-MAP Test","om\_contractor":"","organization":null,"owner\_1":"Confidential","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"n/a","primary\_reference":"http://timberrockes.com/company.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Transportation Services","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":10,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Maryland","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-09-05T20:07:46Z","updated\_at\_by\_admin":"2014-09-05T20:07:44Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"AllCell Technologies","zip":""}},{"project":{"announcement\_on":"2022-09-01","approval\_status":1,"city":"Annonbon Island","commissioning\_on":"2022-10-01","companion":"5 MW PV","construction\_on":"2022-10-01","contact\_city":"Lawrenceville","contact\_country":"United States","contact\_email":"mkoenig@princetonpower.com","contact\_info\_visible":false,"contact\_name":"Matt Koenig","contact\_phone":"(609) 955-5390","contact\_state":"NJ","contact\_street\_address":"3175 Princeton Pike","contact\_zip":"08648","contractor\_1":"Wise Power","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Equatorial Guinea","created\_at":"2014-06-23T16:58:35Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Africa’s Largest Self Sufficient Solar Microgrid Project Created through Technologies from MAECI, GE and Princeton Power Systems.\r\nThe government of Equatorial Guinea selected MAECI Solar, a division of Management and Economic Consulting, Inc., in collaboration with GE Power &amp; Water and Princeton Power Systems, Inc., to install a 5 megawatt (MW) solar microgrid system on Annobon Province, an island off Equatorial Guinea in west central Africa. The solar microgrid will feature 5 MW solar modules and system integration by MAECI, energy management system and controls from Princeton Power Systems and energy storage from GE. The island-wide microgrid will provide reliable, predictable power, supply enough electricity to handle 100 percent of the island’s current energy demand and be the largest self-sufficient solar project on the continent of Africa.\r\n","developer":"MAECI","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1354,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1354/2013-09-10\_08.04.40.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1354/thumb\_2013-09-10\_08.04.40.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1354/partner\_2013-09-10\_08.04.40.jpg"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-1.4221087,"longitude":5.6195112,"master\_project\_id":null,"name":"Annobon Island Microgrid","om\_contractor":"Wise Power","organization":"","owner\_1":"Government of Equitorial Guinea","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.genewscenter.com/Press-Releases/Africa-s-Largest-Self-Sufficient-Solar-Microgrid-Project-Created-through-Technologies-from-MAECI-GE-4761.aspx","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Residential (Reliability)","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":5000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Annonbon Island","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-22T21:15:29Z","updated\_at\_by\_admin":"2016-01-20T03:28:22Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"GE Energy Storage","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Loderio","commissioning\_on":"2022-06-01","companion":"","construction\_on":"2022-06-13","contact\_city":"Biasca","contact\_country":"Switzerland","contact\_email":"info@alacaes.com","contact\_info\_visible":true,"contact\_name":"Corporate Relations","contact\_phone":"+41918730505","contact\_state":"Ticino","contact\_street\_address":"Via Croce 1","contact\_zip":"6710","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":4000000.0,"cost\_OPEX":null,"country":"Switzerland","created\_at":"2014-06-25T14:34:35Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"A demonstration plant to test a novel advanced adiabatic compressed air energy storage concept. An abandoned tunnel in the Swiss alps is used as the air storage cavern and a packed bed of rocks thermal energy storage is used to store the heat created during compression. The thermal energy storage is placed inside the pressure cavern.\r\n\r\nProject construction concluded in April 2016. The project is operating in the commissioning phase from April 2016 until June 2016. In June 2016 the plant will start full operation.","developer":"ALACAES","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":2500000.0,"funding\_amount\_2":1500000.0,"funding\_amount\_3":null,"funding\_source\_1":"ALACAES","funding\_source\_2":"Swiss Federal Office of Energy","funding\_source\_3":"","funding\_source\_details\_1":"www.alacaes.com","funding\_source\_details\_2":"www.bfe.admin.ch","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1355,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1355/ALACAES\_Demo\_Plant.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1355/thumb\_ALACAES\_Demo\_Plant.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1355/partner\_ALACAES\_Demo\_Plant.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.384626,"longitude":8.963535,"master\_project\_id":null,"name":"Pollegio-Loderio Tunnel Demonstration Plant - ALACAES","om\_contractor":"","organization":"ALACAES","owner\_1":"ALACAES","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://alacaes.com/technology/pilot-plant/","primary\_reference1":"","projected\_lifetime":"1.0","rdd\_status":"Yes","research\_desc":"R&amp;D project to validate crucial components of the technology","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Ticino","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"Compressed Air","technology\_type":"Adiabatic Compressed Air Storage","technology\_type\_l1":"In-ground Compressed Air Storage","technology\_type\_l2":"Compressed Air Storage","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-12-28T05:50:57Z","updated\_at\_by\_admin":"2016-05-19T21:51:46Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"ALACAES","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"White Marsh","commissioning\_on":"2022-07-10","companion":"PV, EV Chargers","construction\_on":"2022-07-10","contact\_city":"Frederick","contact\_country":"United States","contact\_email":"bhollenbeck@timberrockes.com","contact\_info\_visible":true,"contact\_name":"Brent Hollenbeck","contact\_phone":"877-876-2588 x2","contact\_state":"Maryland","contact\_street\_address":"4539 Metropolitan Court","contact\_zip":"21704","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-25T14:47:03Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"General Motors, OnStar and TimberRock Energy Solutions have collaborated to deploy an advanced, solar microgrid at GM’s E-Motor Plant in White Marsh, Maryland. The objective of the project was to quantify how a microgrid comprised of distributed energy resources (DERs) that include solar PV, EV charging infrastructure, stationary li-ion energy storage and a ﬂeet of Chevy Volts could deliver an economic “beneﬁt stack” sufﬁcient to enable scalable, microgrid business models. \r\nThe project tightly integrates the performance of the various DERs within the microgrid via TimberRock’s Distributed Energy Resources Management System (DERMS) called De-MAP. De-MAP serves as the integration platform for both the DERs and the external management systems. The DERs are aggregated and managed as a single block of capacity allowing them to “straddle the meter” and be dispatched to deliver value to both the host site – delivering cost-effective energy and reducing demand charges – and the grid by providing services like frequency regulation.\r\n\r\nThe project represents the ﬁrst commercial deployment of OnStar’s Smart Grid solutions which allows EVs to be integrated with a microgrid and directly managed as grid-interactive resources. PJM, the grid operator, was heavily involved with the project since its inception and the Maryland Energy Administration has awarded the project their prestigious Game Changer award.\r\n","developer":"TimberRock Energy Solutions Inc., GM, OnStar","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Maryland Game Changer Competitive Grant Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1357,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1357/GM\_Timber.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1357/thumb\_GM\_Timber.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1357/partner\_GM\_Timber.png"}},"integrator\_company":"TimberRock Energy Solutions Inc.","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.3794196,"longitude":-76.4599043,"master\_project\_id":null,"name":"GM E-Motor Charging Station & Microgrid","om\_contractor":"","organization":null,"owner\_1":"General Motors","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://timberrockes.com/docs/TRES-MEA.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transportation Services","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":30,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Maryland","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-12-23T22:19:28Z","updated\_at\_by\_admin":"2015-12-23T22:19:28Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"TimberRock Energy Solutions Inc.","zip":"21162"}},{"project":{"announcement\_on":"2022-06-24","approval\_status":1,"city":"Wolverhampton","commissioning\_on":"2022-03-17","companion":"11 kV Substation","construction\_on":"2022-09-01","contact\_city":"","contact\_country":"United Kingdom","contact\_email":"bgodfrey@westernpower.co.uk; m.billson@sheffield.ac.uk","contact\_info\_visible":false,"contact\_name":"Ben Godfrey; Matthew Billson","contact\_phone":"01332 827447","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2014-06-25T14:47:42Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This Engineering and Physical Sciences Research Council (EPSRC) funded project will investigate the efficacy of energy storage to act upon an electrical network and supply power and energy back into the grid at appropriate times. The effort is part of the Grid Connected Energy Storage Research Demonstrator project, led by the University of Sheffield.\r\n\r\nIn September 2014 a main 2 MW (1 MWh) Lithium-Titanate SCiB system was supplied by Toshiba and ABB, with a further 250 kW system investigating the use of repurposed second life EV batteries.\r\n\r\nWestern Power Distribution (WPD) is providing the point of network connection and a short term lease at their 11 kV Willenhall substation, but UK regulations prohibit distribution network operators from generating electricity or trading in energy markets. So while the project will be owned and operated by EPSRC, both partners will closely monitor the \"effects on the network of this influx of energy storage, paying particular attention to the power requirement, diversity of connection and power quality experienced, to draw together a standard arrangement and assessment method for connecting more units in the future.\"\r\n\r\nhttps://www.sheffield.ac.uk/creesa\r\n\r\nhttp://www.epsrc.ac.uk/\r\n\r\nhttp://www.businesswire.com/news/home/20140624005760/en/Toshiba-Supply-Lithium-Titanate-Battery-2MW-Energy-Storage#.U6l2S\_ldWQA\r\n\r\nhttp://www.edie.net/news/6/Universities-unite-to-connect-UK-s-fastest-energy-storage-system-to-the-grid/","developer":"Engineering and Physical Sciences Research Council (EPSRC)","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Engineering and Physical Sciences Research Council (EPSRC)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1358,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1358/640\_Willenhall-Battery-1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1358/thumb\_640\_Willenhall-Battery-1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1358/partner\_640\_Willenhall-Battery-1.jpg"}},"integrator\_company":"ABB","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":52.5853723,"longitude":-2.0578725,"master\_project\_id":null,"name":"EPSRC Grid Connected Energy Storage Research Demonstrator with WPD and Toshiba","om\_contractor":"Engineering and Physical Sciences Research Council (EPSRC)","organization":"","owner\_1":"University of Sheffield","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.energy2050.ac.uk","primary\_reference1":"https://www.sheffield.ac.uk/creesa/willenhall/facts","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"This role in grid management will be investigated in the UK, in the Grid Connected Energy Storage Research Demonstrator project, led by the University of Sheffield, funded by the Engineering and Physical Sciences Research Council (EPSRC), with support from both industrial and academic partners.","research\_institution":"University of Sheffield","research\_institution\_link":"https://www.sheffield.ac.uk/creesa","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":2000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"West Midlands","status":"Operational","street\_address":"Willenhall Substation","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T07:27:18Z","updated\_at\_by\_admin":"2016-03-22T23:27:48Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Western Power Distribution","utility\_type":"Investor Owned","vendor\_company":"Toshiba","zip":"WV13 2NS"}},{"project":{"announcement\_on":"2022-09-05","approval\_status":0,"city":"Guadaloupe","commissioning\_on":"2022-04-01","companion":"PV","construction\_on":null,"contact\_city":"La Tour de Salvagny","contact\_country":"France","contact\_email":"jc.marcel@tenesol.com","contact\_info\_visible":false,"contact\_name":"Jean-Christian Marcel","contact\_phone":"33 478 48 88 74","contact\_state":"","contact\_street\_address":"allée du Levant","contact\_zip":"69890","contractor\_1":"Saft","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2014-06-25T14:58:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-12-01","desc":"Tenesol, ADEME, Saft, and EDF SEI collaborated to install 15 residential sized Saft 11 kWh Li-ion Intensium Flex units, each connected to a 2 kW PV system. The purpose of the project was to demonstrate the ability of a PV / Li-ion system to time-shift PV energy in a highly efficient and reliable way on a daily basis. For the utility (namely in a stressed grid with shortfalls in peak periods) this test simulates the future substitution of fossil fuelled peak generation assets by aggregation of a large number of decentralized, residential systems.","developer":"Tenesol","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"French Government","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1360,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Tenesol","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":16.2411,"longitude":-61.5331,"master\_project\_id":"","name":"Guadaloupe Li-ion Energy to Grid Test","om\_contractor":"","organization":null,"owner\_1":"Tenesol","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The system fulfilled all expected functional requirements. In particular, the battery demonstrated its ability to provide a guaranteed amount of energy upon demand, corresponding to a daily depth of discharge of 50%, with an energy efficiency of 97%.","primary\_reference":"http://www.saftbatteries.com/force\_download/cp\_34-08\_en.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":107,"size\_kwh":1.53333333333333,"size\_kwh\_hours":1,"size\_kwh\_minutes":32.0,"state":"Guadaloupe","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-07-25T16:31:37Z","updated\_at\_by\_admin":"2014-07-25T16:31:37Z","updated\_by":null,"updated\_by\_email":null,"utility":"EDF Systèmes Electriques Insulaires","utility\_type":"","vendor\_company":"Saft","zip":"971"}},{"project":{"announcement\_on":"2022-06-11","approval\_status":1,"city":"Les Renardières","commissioning\_on":"2022-06-24","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"France","contact\_email":"francois.bouchon@saftbatteries.com, aude.pelletier@edfenergy.com, panagiotis.papadopoulos@edfenergy.com","contact\_info\_visible":false,"contact\_name":"Francois Bouchon, Aude Pelletier, Panagiotis Papadopoulos","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2014-06-25T20:38:57Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Alstom-Saft consortium has signed a frame contract with the EDF group to supply an initial energy storage system using a container of Lithium-ion batteries, demonstrating the system’s ability to regulate the frequency of the grid. Alstom's MaxSineTM eStorage solution, connected to Saft's Intensium® Max 20M storage system, will be installed on EDF R&D's experimental \"Concept Grid\", dedicated to the development of grids and smart electrical systems. Located on the EDF site of Les Renardières south of Paris (Seine-et-Marne region), this is the first installation of its kind in France. The storage system and the power converter will be delivered in late 2014.\r\n\r\nAs part of this contract, Alstom and Saft will provide the complete 1 MW/30 min energy storage and conversion system. Saft will supply its Intensium® Max 20 foot lithium-ion battery container, while Alstom will install its MaxSineTM eStorage solution. Alstom's MaxSineTM eStorage includes a power converter that connects the Direct Current (DC) battery to the Alternating Current (AC) grid, and converts the electricity between DC and AC to be stored or released into the grid. It also includes real-time energy storage management software to optimize the production of electricity according to the needs of the grid.","developer":"","electronics\_provider":"Alstom","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1361,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1361/edf.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1361/thumb\_edf.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1361/partner\_edf.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.371189,"longitude":2.841422,"master\_project\_id":null,"name":"EDF R&D Les Renardières Concept Grid ESS","om\_contractor":"","organization":"","owner\_1":"Electricité de France (EDF)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.alstom.com/press-centre/2014/6/alstom-and-saft-provide-edf-with-an-innovative-system-of-energy-storage-batteries-/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Seine-et-Marne","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-11T01:56:18Z","updated\_at\_by\_admin":"2015-07-02T00:56:34Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Electricité de France (EDF)","utility\_type":"Federally Owned","vendor\_company":"Saft","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Pala","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"JMcIlvoy@semprautilities.com","contact\_info\_visible":false,"contact\_name":"Josh McIlvoy","contact\_phone":"858-866-2545","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Satcom","contractor\_2":"Wilson","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-25T22:28:15Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Greensmith, Satcom and Wilson supplied a 1.5 Mwh lithium ion system to San Diego Gas and Electric's (SDG&E) Pala Substation for power quality. 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The system is for power quality. ","developer":"","electronics\_provider":"PowerHub","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1363,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.7742488,"longitude":-117.1411815,"master\_project\_id":null,"name":"SDGE Skills CES, GRC ES Program Unit 2","om\_contractor":"San Diego Gas and Electric","organization":null,"owner\_1":"San Diego Gas and Electric","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.cpuc.ca.gov/NR/rdonlyres/36D1D0D0-9719-4172-BCDB-5723D303A78D/0/SDGE\_StorageApplication.pdf","primary\_reference1":null,"projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":25,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-07T16:36:38Z","updated\_at\_by\_admin":"2014-08-07T16:36:38Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Saft","zip":"92108"}},{"project":{"announcement\_on":"2022-02-28","approval\_status":0,"city":"San Diego","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"JMcIlvoy@semprautilities.com","contact\_info\_visible":false,"contact\_name":"Josh McIlvoy","contact\_phone":"858-866-2545","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-25T22:28:59Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Saft and Powerhub will supply a 50 kWh lithium ion system to San Diego Gas and Electric's (SDG&E) Clairmont Community Energy Storage Project. The system will be used for power quality.","developer":"","electronics\_provider":"PowerHub","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1364,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.8256427,"longitude":-117.1558867,"master\_project\_id":null,"name":"SDGE Clairmont CES, GRC ES Program Unit 3","om\_contractor":"San Diego Gas and Electric","organization":null,"owner\_1":"San Diego Gas and Electric","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.cpuc.ca.gov/NR/rdonlyres/36D1D0D0-9719-4172-BCDB-5723D303A78D/0/SDGE\_StorageApplication.pdf","primary\_reference1":null,"projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":25,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-07T16:39:27Z","updated\_at\_by\_admin":"2014-08-07T16:39:09Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Saft","zip":"92111"}},{"project":{"announcement\_on":"2022-02-28","approval\_status":0,"city":"Poway","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"JMcIlvoy@semprautilities.com","contact\_info\_visible":false,"contact\_name":"Josh McIlvoy","contact\_phone":"858-866-2545","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-25T22:29:00Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Saft and Powerhub will supply a 50 kWh lithium ion system to San Diego Gas and Electric (SDG&E) for the Poway Community Energy Storage Project. The system will be used for power quality.","developer":"","electronics\_provider":"PowerHub","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1365,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.9628232,"longitude":-117.0358646,"master\_project\_id":null,"name":"SDGE Poway CES, GRC ES Program Unit 4","om\_contractor":"San Diego Gas and Electric","organization":null,"owner\_1":"San Diego Gas and Electric","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.cpuc.ca.gov/NR/rdonlyres/36D1D0D0-9719-4172-BCDB-5723D303A78D/0/SDGE\_StorageApplication.pdf","primary\_reference1":null,"projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":25,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-07T16:45:08Z","updated\_at\_by\_admin":"2014-08-07T16:45:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Saft","zip":"92064"}},{"project":{"announcement\_on":"2022-02-28","approval\_status":0,"city":"Borrego Springs","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"JMcIlvoy@semprautilities.com","contact\_info\_visible":false,"contact\_name":"Josh McIlvoy","contact\_phone":"858-866-2545","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-25T22:29:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Saft and ABB will supply a 3 MWh lithium ion system to San Diego Gas and Electric (SDG&E) at the Borrego Substation. The system will be used for power quality and capacity/infrastructure deferral.","developer":"","electronics\_provider":"ABB Electric","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1366,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.2582082,"longitude":-116.3243793,"master\_project\_id":null,"name":"SDGE Borrego SES, GRC ES Program Unit 5","om\_contractor":"San Diego Gas and Electric","organization":null,"owner\_1":"San Diego Gas and 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McIlvoy","contact\_phone":"858-866-2545","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-25T22:29:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Greensmith, ABB, and Samsung SDI will supply San Diego Gas and Electric (SDG&E) with a 3 MWh lithium ion system for capacity & infrastructure deferral and power quality.","developer":"","electronics\_provider":"ABB Electric","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1367,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Samsung 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Start”\r\n\r\nFeatures:\r\n• System can be monitored/controlled locally or remotely\r\n• Four-quadrant operation (Watts and/or VARs)\r\n• Multiple modes of operation: Manual or Scheduled Dispatch, Peak Shaving, PV Smoothing, Islanding and Black Start\r\n","developer":"","electronics\_provider":"ABB Electric","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1368,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1368/canyoncrest.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1368/thumb\_canyoncrest.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1368/partner\_canyoncrest.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.9436607,"longitude":-117.2088167,"master\_project\_id":null,"name":"SDG&E Carmel Valley - Saft / ABB","om\_contractor":"San Diego Gas and Electric (SDG&E)","organization":"","owner\_1":"San Diego Gas and Electric 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Deferral","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Primary Distribution","size\_kw":1000,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-07T18:31:14Z","updated\_at\_by\_admin":"2014-08-07T18:31:14Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Greensmith","zip":"97941"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Jenner","commissioning\_on":"2022-02-28","companion":"","construction\_on":null,"contact\_city":"Pittsburgh","contact\_country":"United States","contact\_email":"twiley@aquion-energy.com","contact\_info\_visible":true,"contact\_name":"Ted Wiley","contact\_phone":"412-904-6400","contact\_state":"PA","contact\_street\_address":"32 39th Street","contact\_zip":"15201","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-26T14:42:51Z","created\_by\_id":257,"debt\_investor":"","decommissioning\_on":null,"desc":"The final design of the solar hybrid off-grid microgrid included a 10.8 kW stationary photovoltaic array and a 60 kWh aqueous hybrid ion (AHI) battery pack. Average daily energy consumption was estimated at about 24 kWh with an average daily peak of 4 kW. The system is sized to support >14 kW of instantaneous power in order to serve the maximum anticipated load. Loads include the main house, workshop/garage, guest house, pool filtration, and water pumping. The living spaces use a wood burning stove as the primary heat source and a propane-fueled in-floor radiant heat back up system. Water is heated by a solar thermal system. The system uses control software that enables integration, controls, optimization, automation, and networking of the microgrid components.","developer":"","electronics\_provider":"Dynapower","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1370,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1370/rgr-batteries.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1370/thumb\_rgr-batteries.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1370/partner\_rgr-batteries.jpg"}},"integrator\_company":"Real Goods Solar","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":38.4497134,"longitude":-123.1151969,"master\_project\_id":null,"name":"Aquion AHI at Redwood Gate Ranch","om\_contractor":"","organization":null,"owner\_1":"Private Individual","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"http://www.battcon.com/PapersFinal2014/3%20Wiley%20Paper%202014%20Final.pdf","primary\_reference":"http://www.aquionenergy.com/blog/look-aquions-latest-grid-installation-redwood-gate-ranch","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":15,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Sodium-ion Battery","technology\_type\_l1":"Sodium-ion Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-11-07T20:55:18Z","updated\_at\_by\_admin":"2014-11-07T20:55:18Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Aquion Energy","zip":""}},{"project":{"announcement\_on":"2022-03-13","approval\_status":1,"city":"Nakatane","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"takenori.kobayashi@toshiba.co.jp","contact\_info\_visible":false,"contact\_name":"Dr.Kobayashi","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2014-06-26T17:06:27Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2021-12-31","desc":"Toshiba Corporation has delivered a battery energy storage system integrating the company's SCiB™, a lithium-ion secondary battery to Kyushu Electric Power Co., Inc., for a demonstration project to expand introduction of renewable energy sources on remote islands. The system has been installed in a substation on Tanegashima Island, in Kagoshima prefecture, and will be used to demonstrate the integration and optimum control of battery energy storage systems deployed to manage frequency regulation and maintain stable power supply on remote islands, which are increasingly turning to renewable energy sources. The demonstration program will run for three years to fiscal 2016.","developer":"","electronics\_provider":"Toshiba","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1371,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1371/tane\_300.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1371/thumb\_tane\_300.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1371/partner\_tane\_300.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":30.5328223,"longitude":130.9588497,"master\_project\_id":null,"name":"Tanegashima Island Toshiba Li-Ion","om\_contractor":"","organization":"","owner\_1":"Kyushu Electric Power Company","owner\_2":"","owner\_type":"3","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.toshiba.co.jp/about/press/2014\_03/pr1301.htm","primary\_reference1":"","projected\_lifetime":"3.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":3000,"size\_kwh":0.383333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":23.0,"state":"Kagoshima","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-28T16:52:00Z","updated\_at\_by\_admin":"2014-08-12T21:17:08Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Kyushu Electric Power Company","utility\_type":"Investor Owned","vendor\_company":"Toshiba","zip":""}},{"project":{"announcement\_on":"2022-03-13","approval\_status":1,"city":"Tatsugo","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"takenori.kobayashi@toshiba.co.jp","contact\_info\_visible":false,"contact\_name":"Dr.Kobayashi","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2014-06-26T17:06:27Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Toshiba Corporation has delivered a battery energy storage system integrating the company's SCiB™, a lithium-ion secondary battery to Kyushu Electric Power Co., Inc., for a demonstration project to expand introduction of renewable energy sources on remote islands. The system has been installed in a substation on Amamoioshima Island, in Kagoshima prefecture, and will be used to demonstrate the integration and optimum control of battery energy storage systems deployed to manage frequency regulation and maintain stable power supply on remote islands, which are increasingly turning to renewable energy sources. The demonstration program will run for three years to fiscal 2016.","developer":"","electronics\_provider":"Toshiba","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1372,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1372/amamioshima\_300.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1372/thumb\_amamioshima\_300.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1372/partner\_amamioshima\_300.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":28.4512335,"longitude":129.6040635,"master\_project\_id":null,"name":"Amamioshima Island Toshiba Li-Ion","om\_contractor":"","organization":"","owner\_1":"Kyushu Electric Power Company","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.toshiba.co.jp/about/press/2014\_03/pr1301.htm","primary\_reference1":"","projected\_lifetime":"3.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":2000,"size\_kwh":0.383333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":23.0,"state":"Kagoshima","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T07:24:44Z","updated\_at\_by\_admin":"2014-08-12T21:17:30Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Kyushu Electric Power Company","utility\_type":"Investor Owned","vendor\_company":"Toshiba","zip":""}},{"project":{"announcement\_on":"2022-09-26","approval\_status":0,"city":"Raffineria","commissioning\_on":null,"companion":"10 kW PV, EV Chargers","construction\_on":"2021-12-31","contact\_city":"","contact\_country":"","contact\_email":"takenori.kobayashi@toshiba.co.jp,","contact\_info\_visible":false,"contact\_name":"Dr. Kobayashi","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-06-26T20:35:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Toshiba Corporation announced that its Italian power systems subsidiary, Ansaldo Trasmissione &amp; Distribuzione S.p.A (Ansaldo T&amp;D), has won a contract to supply a key element of a smart grid system to Rome-based ACEA Distribuzione S.p.A (Gruppo ACEA), one of Italy’s public utilities. Installation of the equipment will start in December 2011 and it is expected to be commissioned and on line by the end of spring 2012.\r\nThe system to be supplied by Ansaldo T&amp;D comprises a 10kW photovoltaic (PV) power generation system; a 45kWh SCiB™, Toshiba’s breakthrough rechargeable lithium-ion battery; chargers for electric vehicles (EV); and the overall system monitoring and control unit (μEMS).\r\nOnce installed at Raffineria, an ACEA substation in Rome, the system will provide an integrated solution for generating (PV), storing (SCiB™) and delivering electricity to charge EV. Such charging stations are seen as an integral part of smart grids and the next generation smart community concept for interactive power generation and distribution.\r\n","developer":"","electronics\_provider":" Landis+Gyr’s","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1374,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.8723889,"longitude":12.4801802,"master\_project\_id":null,"name":"ACEA Raffineria Substation Smart Grid ","om\_contractor":"","organization":null,"owner\_1":"ACEA Distribuzione S.p.A","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.toshiba.co.jp/about/press/2011\_09/pr2601.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Transportation Services","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":10,"size\_kwh":4.5,"size\_kwh\_hours":4,"size\_kwh\_minutes":30.0,"state":"Rome","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-12T21:17:47Z","updated\_at\_by\_admin":"2014-08-12T21:17:47Z","updated\_by":null,"updated\_by\_email":null,"utility":"ACEA Distribuzione S.p.A","utility\_type":"Investor Owned","vendor\_company":"Toshiba","zip":""}},{"project":{"announcement\_on":"2022-03-27","approval\_status":0,"city":"Yokohama","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jscp2@nikkeibp.co.jp","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2014-06-26T20:35:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Yokohama Smart City Project (YSCP) is an effort to develop a model for smart cities by means of cooperation between citizens, private companies, and the municipality, and to export the successful model to Japan and the rest of the world. Large-scale operational experiments are being held with Yokohama. The hierarchical bundling of energy management systems (EMS) enables energy management at the level of individual EMS and demand-side management at the level of the overall system. \r\nOne of the most unique undertakings of the Yokohama Smart City Project (YSCP) is the storage battery SCADA. SCADA stands for Supervisory Control And Data Acquisition and is a device monitoring and control system. The storage battery SCADA uses multiple storage batteries as one massive virtual battery to control battery charging and discharging. This type of system is nearly unprecedented anywhere in the world, and creating the system has made it possible to achieve moderated demand response (DR). Participating in the project are Toshiba Corporation, Tokyo Electric Power Company (TEPCO), Incorporated, Hitachi, Ltd., Meidensha Corporation, NEC Corporation, Sharp Corporation, and Sony Energy Devices Corporation. \r\nTwo types of batteries are controlled by the storage battery SCADA: large batteries used to adjust electric power supply and demand; and stationary batteries used in homes, commercial buildings, and so on. The batteries used for supply and demand adjustments are lithium-ion batteries manufactured by Toshiba (300 kW), Hitachi (100 kW), and NEC and Meidensha Corporation through joint development (200 kW), providing total output of 600 kW. Batteries designed for users were installed in homes and commercial buildings by Sony Energy Devices, and batteries for office buildings in Yokohama were installed by Sharp.\r\nThe storage battery SCADA performs three types of functions to control these batteries: daily operation, short-cycle supply and demand adjustment, and reserve power operation. The moderated DR mentioned above is achieved by daily operation.\r\nSpecifically, the storage battery SCADA sends inquiries to home and commercial building users about their spare battery capacity on the following day. The responses received indicate how much spare capacity is available and when, as well as indicating that operations of a certain type are planned for a specific time, and therefore the remaining capacity may be used freely. Based on these responses, the storage battery SCADA borrows the spare capacity of user batteries and charges the batteries from the power grid at times when power demand is relatively low.\r\nThe power company estimates the shortfall in electric power compared to the amount of power needed at peak times based on daily demand forecasts and supply plans. The storage battery SCADA receives requests from the power company, gathers spare battery capacity equal to the amount of the shortfall, and stores power. In addition, when sending inquiries about spare capacity to users, the system also asks how much the users want to be paid per kilowatt hour as an incentive (payment is made for capacity actually used in 30-minute increments). The storage battery SCADA selects batteries in homes and commercial buildings up to the required storage capacity starting with the lowest incentives. In this way, the electric power company can provide the necessary power by discharging batteries when electricity supply and demand is tight.\r\nThe second function, short-cycle supply and demand adjustment, is a method of using supply and demand adjustment batteries to make up for the shortfall in short-cycle adjustment capacity provided by thermal electricity generation and hydroelectric power resulting from the introduction of renewable energy, which is subject to output fluctuations. Load frequency control is performed.\r\nThe third function, reserve power operation, discharges supply and demand adjustment batteries during emergencies such as when an accident occurs to the power grid in order to minimize the effects of the accident.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1375,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1375/yokohama\_scada\_1\_2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1375/thumb\_yokohama\_scada\_1\_2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1375/partner\_yokohama\_scada\_1\_2.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.4437078,"longitude":139.6380256,"master\_project\_id":null,"name":"Yokohama Smart City Project, SCADA Virtual Battery","om\_contractor":"","organization":null,"owner\_1":"Consortium of Companies","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://jscp.nepc.or.jp/article/jscpen/20140326/389815/index.shtml","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":600,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Kanagawa","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-09-05T20:43:48Z","updated\_at\_by\_admin":"2014-08-12T21:16:10Z","updated\_by":null,"updated\_by\_email":null,"utility":"Tokyo Electric Power Corporation","utility\_type":"","vendor\_company":"Toshiba, Hitachi, NEC, Meidensha Corporation","zip":""}},{"project":{"announcement\_on":"2022-06-11","approval\_status":1,"city":"Horsley Park","commissioning\_on":"2022-09-30","companion":"Solar PV","construction\_on":"2022-06-30","contact\_city":"Sydney","contact\_country":"Australia","contact\_email":"nahaz.chowdhury@transgrid.com.au","contact\_info\_visible":false,"contact\_name":"Nahaz Chowdhury","contact\_phone":"001161292843209","contact\_state":"NSW","contact\_street\_address":"C/O TransGrid, 180 Thomas St","contact\_zip":"2000","contractor\_1":"enLighten","contractor\_2":"Yellowdot","contractor\_3":"Solgen","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2014-06-27T05:35:30Z","created\_by\_id":150,"debt\_investor":"","decommissioning\_on":null,"desc":"TransGrid’s iDemand system comprising of batteries, solar panels and LEDs was launched in November 2014 to facilitate research and engagement in demand management through a pilot project. The iDemand system at TransGrid’s Western Sydney site consists of a 400 kWh Lithium polymer battery system, 53 kW of polycrystalline silicon and 45 kW of thin film cadmium telluride solar panels, energy efficient lighting, with a web portal that updates key system output data every 5 to 30 seconds. Two research projects on the iDemand system were current as of April 2016: one with Green Trading Systems, and a second one with University of Sydney. Both related to peak optimisation by dynamic battery discharge.","developer":"","electronics\_provider":"Magellan Power","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Demand Management Innovation Allowance as determined by the Australian Energy Regulator","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1376,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1376/Magellan.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1376/thumb\_Magellan.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1376/partner\_Magellan.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-33.8243541,"longitude":150.8257168,"master\_project\_id":null,"name":"TransGrid iDemand","om\_contractor":"","organization":"TransGrid","owner\_1":"TransGrid","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"4000 cycles","primary\_reference":"http://www.transgrid.com.au/what-we-do/innovation/idemand/iDemand%20Live%20Monitor/Pages/default.aspx","primary\_reference1":"http://magellanpower.com.au/Projects/TransGrid","projected\_lifetime":"13.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":100,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"New South Wales","status":"Operational","street\_address":"200 Old Wallgrove Road ","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Nickel Manganese Cobalt Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-25T05:23:23Z","updated\_at\_by\_admin":"2016-04-18T18:59:41Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"TransGrid","utility\_type":"Public Owned","vendor\_company":"Kokam","zip":"2175"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Galt","commissioning\_on":"2022-01-01","companion":"3 MW PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Mark.Rawson@SMUD.org","contact\_info\_visible":false,"contact\_name":"Mark Rawson","contact\_phone":"916-732-6364","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-30T14:37:30Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This Mitsubishi Mlix unit smooths output from a connected PV array. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1377,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1377/lion\_3.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1377/thumb\_lion\_3.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1377/partner\_lion\_3.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"BANC","latitude":38.2546373,"longitude":-121.2999485,"master\_project\_id":null,"name":"SMUD Galt Advanced Feeder Demo ESS","om\_contractor":"","organization":"Sacramento Municipal Utilities District","owner\_1":"Sacramento Municipal Utilities District","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.energy.ca.gov/research/energystorage/tour/lion/","primary\_reference1":"http://www.energy.ca.gov/2013\_energypolicy/documents/2013-08-19\_workshop/presentations/03\_SMUD\_2030\_Presentation.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":500,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"California","status":"Operational","street\_address":"9690 Kost Road","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-26T19:12:32Z","updated\_at\_by\_admin":"2015-12-24T01:33:15Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Sacramento Municipal Utility District","utility\_type":"Public Owned","vendor\_company":"Mitsubishi","zip":"95632"}},{"project":{"announcement\_on":"2022-06-26","approval\_status":1,"city":"Anahola","commissioning\_on":"2022-11-01","companion":"12 MW PV Array","construction\_on":"2022-09-01","contact\_city":"Lihu'e","contact\_country":"United States","contact\_email":"jpcox@kiuc.coop","contact\_info\_visible":false,"contact\_name":"John Cox","contact\_phone":"808.246.8205","contact\_state":"Hawaii","contact\_street\_address":"4463 Pahe'e Street, Suite 1","contact\_zip":"96766-2000","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":7000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-06-30T15:07:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Saft will supply 8 Intensium Max 20M containers and two containers housing an ABB 6 MW PCS to Kaua'i Island Utility Co-operative (KIUC). The units will be incorporated into a 60-acre, 12 MW (14.5 MW DC) PV array in Anahola on the northeast side of the island of Kaua‘i. It is expected to generate twenty percent of Kaua‘i’s annual energy needs, or enough electricity to power 4,000 homes. \r\n\r\nThe duration is 50 minutes @ 3 MW - 70% SOC","developer":"Kauai Island Utility Cooperative, REC Solar","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Debt","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"U.S. Department of Agriculture Rural Utilities Service","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1378,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1378/saft.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1378/thumb\_saft.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1378/partner\_saft.jpg"}},"integrator\_company":"Saft","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":22.1452778,"longitude":-159.3155556,"master\_project\_id":null,"name":"Anahola Solar Array and Battery - Kauai Island Utility Cooperative & REC Solar","om\_contractor":"Kauai Island Utility Cooperative, Saft","organization":"","owner\_1":"KIUC Renewable Solutions One LLC (KRS1)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.pv-magazine.com/news/details/beitrag/rec-puts-online-hawaiis-largest-solar-plant\_100021823/#axzz3qQI5jmIC","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":6000,"size\_kwh":0.833333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":50.0,"state":"Hawaii","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-17T03:17:00Z","updated\_at\_by\_admin":"2015-11-03T17:17:49Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Kauai Island Utility Cooperative","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Saft","zip":"96703"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Monrovia","commissioning\_on":"2022-07-11","companion":"","construction\_on":"2022-04-03","contact\_city":"Monrovia","contact\_country":"United States","contact\_email":"PNortman@CODAEnergy.com","contact\_info\_visible":true,"contact\_name":"Pete Nortman","contact\_phone":"6265333606","contact\_state":"California","contact\_street\_address":"135 E Maple Avenue","contact\_zip":"91016","contractor\_1":"Power Source Select","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-01T17:27:52Z","created\_by\_id":259,"debt\_investor":"Fortress Investment Group","decommissioning\_on":null,"desc":"A networked collection of (34) 31kWh new Lithium Iron Phosphate vehicle battery systems in groups of 2 each that are interconnected to the grid via (17) 30kW inverters. System to provide building demand reduction, peak shaving, time of use load shifting and ancillary services.","developer":"CODA Energy Holdings","electronics\_provider":"Princeton Power","energy\_management\_software\_provider":"","funding\_amount\_1":890000.0,"funding\_amount\_2":906000.0,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"State/Provincial/Regional Commercialization Incentive","funding\_source\_3":"Private/Third Party Equity","funding\_source\_details\_1":"Air Quality Management District","funding\_source\_details\_2":"Self Generation Incentive Program","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1380,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1380/IMG\_4387.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1380/thumb\_IMG\_4387.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1380/partner\_IMG\_4387.JPG"}},"integrator\_company":"CODA Energy Holdings","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":34.141845,"longitude":-117.999768,"master\_project\_id":null,"name":"Monrovia South Coast Air Quality Management District BESS 3 - CODA Energy Holdings","om\_contractor":"CEH CA Operating, LLC","organization":"CODA Energy Holdings","owner\_1":"CODA Energy Holdings","owner\_2":"Air Quality Management District","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":0.0,"performance":"500kW, 2 hours","primary\_reference":"http://www.codaenergy.com/about-us/our-latest-projects/","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_5":"Load Following (Tertiary Balancing)","service\_use\_case\_6":"Transportation Services","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":510,"size\_kwh":2.06666666666667,"size\_kwh\_hours":2,"size\_kwh\_minutes":4.0,"state":"California","status":"Operational","street\_address":"135 E. Maple Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-24T17:17:50Z","updated\_at\_by\_admin":"2016-05-17T00:07:36Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"CODA Energy Holdings","zip":"91016"}},{"project":{"announcement\_on":"2022-06-18","approval\_status":2,"city":"Benicia","commissioning\_on":"2022-06-18","companion":"1 BTC Power Level 3 Fast EV Charger, 175 kW solar PV array","construction\_on":"2022-02-04","contact\_city":"Benicia","contact\_country":"United States","contact\_email":"Aporteshawver@ci.benicia.ca.us","contact\_info\_visible":true,"contact\_name":"Alex Porteshawver","contact\_phone":"","contact\_state":"CA","contact\_street\_address":"250 East L St","contact\_zip":"94510","contractor\_1":"McCalmont Engineering","contractor\_2":"Bass Electric","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-01T20:58:22Z","created\_by\_id":260,"debt\_investor":"","decommissioning\_on":null,"desc":"Enabled by the Geli Energy Operating System (EOS), the system includes eight(8)networked energy devices. This provides the City of Benicia with an energy dashboard for the 40kWh CODA Energy Storage System, the 175kW Solar PV installation as well as the three (3) EV chargers. It provides the city with demand charge management using both the energy storage system and demand management of the EV chargers. This is the first integration of energy storage with NEM in California.\r\n\r\nWatch the video here:\r\nhttps://www.youtube.com/watch?v=3rLju16xZdA","developer":"Geli, CODA Energy","electronics\_provider":"Ideal Power, Statcon, BTC Power","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"State/Provincial/Regional Commercialization Incentive","funding\_source\_3":"Private/Third Party Equity","funding\_source\_details\_1":"California Energy Commission","funding\_source\_details\_2":"Self Generation Incentive Program","funding\_source\_details\_3":"CODA Energy Holdings","gmaps":true,"hidden":false,"id":1381,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1381/GELI-Benicia-web-115.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1381/thumb\_GELI-Benicia-web-115.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1381/partner\_GELI-Benicia-web-115.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":38.0525089,"longitude":-122.1534235,"master\_project\_id":null,"name":"Geli EOS enabled CODA Core System (City of Benicia City Hall)","om\_contractor":"Geli","organization":null,"owner\_1":"City of Benicia","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.sustainablebenicia.org/","primary\_reference1":null,"projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"California Energy Commission","research\_institution\_link":"http://www.energy.ca.gov/","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":20,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"250 East L St","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-25T17:48:23Z","updated\_at\_by\_admin":"2014-08-25T17:48:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"CODA Energy Holdings","zip":"94510"}},{"project":{"announcement\_on":"2022-07-04","approval\_status":1,"city":"Everett","commissioning\_on":"2022-11-25","companion":"","construction\_on":null,"contact\_city":"Everett","contact\_country":"United States","contact\_email":"jazyskowski@snopud.com","contact\_info\_visible":true,"contact\_name":"Jason Zyskowski","contact\_phone":"425-783-4332","contact\_state":"Washington","contact\_street\_address":"1802 - 75th Street S.W.","contact\_zip":"98206-1107","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-04T01:05:42Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Snohomish County Public Utility District (SNOPUD) and 1Energy Systems will partner to develop and deploy an innovative approach to energy storage, aimed at helping electric utilities increase their use of renewable energy and improve overall reliability. The MESA-1 installation will be the first energy storage system built on the Modular Energy Storage Architecture (MESA), an innovative approach to energy storage based on open, non-proprietary industry standards. \r\n\r\nTwo battery systems will be installed for the system: MESA 1b will utilize a Parker Hannifin Power Conversion System and an LG Chem Ltd. 1 MW (500kWh) Li-Ion battery.\r\n\r\nAlstom Grid and faculty from the University of Washington will join the project to collaborate on research, analysis and design of technology interfaces. 1Energy will lead the selection of future MESA partners who will provide batteries, power conversion and balance-of-system components.\r\n","developer":"Snohomish County Public Utility District No. 1","electronics\_provider":"Parker Hannifin Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1384,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1384/hardeson\_substation.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1384/thumb\_hardeson\_substation.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1384/partner\_hardeson\_substation.jpg"}},"integrator\_company":"1Energy Services, LLC","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":47.936062,"longitude":-122.2476602,"master\_project\_id":null,"name":"Everett MESA 1b Project - SNOPUD","om\_contractor":"Snohomish County Public Utility District No. 1","organization":"Snohomish County Public Utility District No. 1","owner\_1":"Snohomish County Public Utility District No. 1","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.snopud.com/PowerSupply/energystorage.ashx?p=2142","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":"Yes","research\_desc":"Research the economical and electrical system benefits of wide scale deployment of energy storage throughout the District's service territory.","research\_institution":"University of Washington","research\_institution\_link":"http://www.ee.washington.edu/people/faculty/kirschen/","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Washington","status":"Operational","street\_address":"910 Shuksan Way","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:11:02Z","updated\_at\_by\_admin":"2016-08-02T23:08:45Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Snohomish County Public Utility District","utility\_type":"Public Owned","vendor\_company":"LG Chem Ltd.","zip":"98203"}},{"project":{"announcement\_on":"2022-01-31","approval\_status":1,"city":"Monrovia","commissioning\_on":"2022-09-05","companion":"","construction\_on":"2022-05-30","contact\_city":"Monrovia","contact\_country":"United States","contact\_email":"PNortman@codaenergy.com","contact\_info\_visible":true,"contact\_name":"Pete Nortman","contact\_phone":"6265333606","contact\_state":"CA","contact\_street\_address":"135 E Maple Avenue","contact\_zip":"91016","contractor\_1":"Power Source","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-05T04:10:13Z","created\_by\_id":259,"debt\_investor":"Fortress","decommissioning\_on":null,"desc":"An array of (10) 50 kWh Lithium Iron Phosphate battery towers divided into 2 banks of 5 towers apiece. Each 50 kWh battery tower is individually connected to a 100 kW bidirectional inverter. Batteries and electronics are housed within 2 custom enclosures of 500 kW each. \r\n\r\nSite includes PV generation and public 8 public EV charging spots. System will be used to provide ancillary services to CAISO, provide local load shifting, plug-in vehicle charging support, and renewable generation ramp control.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":890000.0,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Debt","funding\_source\_2":"State/Provincial/Regional Grant","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"South Coast Air Quality Management District","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1385,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"CODA Energy","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":34.141763,"longitude":-118.000517,"master\_project\_id":null,"name":"South Coast Air Quality Management District - CODA BESS 1+2","om\_contractor":"CODA Energy","organization":"","owner\_1":"CODA Energy Holdings, LLC","owner\_2":"AQMD","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":0.0,"performance":"1000kW: 0.5hr","primary\_reference":"http://www.codaenergy.com/news/coda-energy-begins-operation-of-the-largest-behind-the-meter-energy-storage-system-in-the-los-angeles-basin/","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"Ramping ","service\_use\_case\_6":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"California","status":"Operational","street\_address":"922 S Myrtle Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-10T00:18:08Z","updated\_at\_by\_admin":"2016-05-17T00:05:04Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"","zip":"91016"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Monrovia","commissioning\_on":"2021-12-19","companion":"","construction\_on":null,"contact\_city":"Monrovia","contact\_country":"United States","contact\_email":"PNortman@codaenergy.com","contact\_info\_visible":true,"contact\_name":"Pete Nortman","contact\_phone":"6265333606","contact\_state":"CA","contact\_street\_address":"135 E Maple Avenue","contact\_zip":"91016","contractor\_1":"Power Source","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-05T04:24:08Z","created\_by\_id":259,"debt\_investor":"Fortress","decommissioning\_on":null,"desc":"A 40kWh, UL Certified (UL1973), battery system comprised of 4 series connected identical 10kWh blocks, connected to a bidirectional 30kW inverter. Used for \"behind the meter\" demand reduction, EV charging load management, and building power quality & power factor, and renewable generation ramp control.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Equity","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"CODA Energy","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1386,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"CODA Energy","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":34.141763,"longitude":-118.000517,"master\_project\_id":"1380:1385","name":"CODA Energy - CORE 40/30","om\_contractor":"","organization":null,"owner\_1":"CODA 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24","contact\_zip":"95055","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":510000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-08T18:36:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks is providing intelligent energy storage solutions to reduce peak demand charges with their sophisticated software algorithm and battery storage system.  In addition, Green Charge Networks is aggregating locations to participate in Demand Response events to increase the savings. ","developer":"Green Charge Networks","electronics\_provider":"IPC","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"California Energy 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24","contact\_zip":"95056","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":510000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-08T18:36:47Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks is providing intelligent energy storage solutions to reduce peak demand charges with their sophisticated software algorithm and battery storage system.  In addition, Green Charge Networks is aggregating locations to participate in Demand Response events to increase the savings. ","developer":"Green Charge Networks","electronics\_provider":"IPC","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"California Energy Commission","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1389,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1389/Greenstation2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1389/thumb\_Greenstation2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1389/partner\_Greenstation2.jpg"}},"integrator\_company":"Green Charge Networks","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.7949249,"longitude":-122.263102,"master\_project\_id":null,"name":"Laney College Green Charge Networks GreenStation","om\_contractor":"","organization":null,"owner\_1":"Green Charge 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24","contact\_zip":"95057","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":510000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-08T18:36:47Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks is providing intelligent energy storage solutions to reduce peak demand charges with their sophisticated software algorithm and battery storage system.  In addition, Green Charge Networks is aggregating locations to participate in Demand Response events to increase the savings. ","developer":"Green Charge Networks","electronics\_provider":"IPC","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"California Energy 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States","created\_at":"2014-07-08T18:36:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks installed an intelligent energy storage system with a DC Fast Charger (electric vehicles). Under the financed model, Green Charge Networks shares in the demand charge savings that the site host realizes monthly on their energy bills. The model provides the site host with a zero-down, no cost turnkey energy storage and EV charging solution.","developer":"Green Charge Networks","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1392,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1392/Greenstation2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1392/thumb\_Greenstation2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1392/partner\_Greenstation2.jpg"}},"integrator\_company":"Green Charge Networks","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":39.7151014,"longitude":-121.7953367,"master\_project\_id":null,"name":"Butte College Green Charge Networks GreenStation","om\_contractor":"","organization":null,"owner\_1":"Green Charge Networks","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.greenchargenet.com/","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Secondary Distribution","size\_kw":30,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"2480 Notre Dame Boulevard","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-03-16T18:23:10Z","updated\_at\_by\_admin":"2015-03-16T18:23:10Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"","zip":"95928"}},{"project":{"announcement\_on":"2022-05-07","approval\_status":1,"city":"Long Island City","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Dave.Lucero@eaglepicher.com","contact\_info\_visible":false,"contact\_name":"Dave Lucero","contact\_phone":"(719) 330-8018","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-08T20:31:17Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Arista Power’s Power on Demand system utilizes inputs from multiple energy sources including solar, wind, fuel cells, generators, and the grid, in conjunction with a custom-designed battery storage system and a proprietary smart monitoring technology that releases energy at optimal times to reduce electricity costs – particularly demand charges – for large energy users. The PoD system that will be installed at the City Lights Building will consist of a micro-grid that will include the integration of the newly installed solar PV, the newly installed CHP co-generation system, energy storage and power distribution. The total value of the PoD and CHP project is $1.275 million.\r\n\r\nThe City Lights Building is managed by Rose Associates, Inc., a New York-based full-service real estate development and management firm.","developer":"Arista Power, Rose Associates","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1393,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1393/CS1-Arista\_Power\_City\_Lights\_Photo2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1393/thumb\_CS1-Arista\_Power\_City\_Lights\_Photo2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1393/partner\_CS1-Arista\_Power\_City\_Lights\_Photo2.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.744365,"longitude":-73.957176,"master\_project\_id":null,"name":"City Lights - Arista Power, Rose Associates","om\_contractor":"","organization":"EaglePicher Technologies","owner\_1":"City Lights Building Co-Op Foundation","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.prweb.com/releases/2013/5/prweb10710127.htm","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":225,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"New York","status":"Operational","street\_address":"4-74 48th Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-03T07:48:54Z","updated\_at\_by\_admin":"2015-10-26T18:02:20Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Consolidated Edison Company of New York (Con Edison)","utility\_type":"Investor Owned","vendor\_company":"EaglePicher Technologies","zip":"11109"}},{"project":{"announcement\_on":"2022-07-08","approval\_status":2,"city":"Champaign","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Charles.T.Decker@usace.army.mil","contact\_info\_visible":false,"contact\_name":"Charles Decker","contact\_phone":"217-373-3361","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-08T20:45:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The EnerDel MHPS delivers significant fuel savings over generator supplied loads in this U.S. Army Engineer Research & Development Center(ERDC), Construction Engineering Research Laboratory(CERL) project.\r\n\r\nThe MHPS uses an onboard battery energy storage system (BESS) as the normal source to the load. It more quickly and efficiently adjusts to load fluctuations than traditional engine driven generators. The BESS reduces generator size and runtime, dramatically reduces fuel consumption and fueling operations, and, extends system maintenance intervals. The MHPS can be configured to connect renewable energy inputs to further extend Silent Watch Mode and provide even greater reductions in fuel consumption. When connected to renewable energy sources (optional), the MHPS store excess energy and then makes it available on demand as conditions warrant.","developer":"EnerDel","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1394,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1394/Mobility3-MHPS\_Photo2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1394/thumb\_Mobility3-MHPS\_Photo2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1394/partner\_Mobility3-MHPS\_Photo2.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"MISO","latitude":40.1496962,"longitude":-88.2729819,"master\_project\_id":null,"name":"EnerDel Mobile Hybrid Power System","om\_contractor":"","organization":null,"owner\_1":"ERDC-CERL","owner\_2":"EnerDel","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Has reduced generator fuel use by 78%.","primary\_reference":"http://www.enerdel.com/mobile-hybrid-power-system-mhps/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"U.S. Army Engineer Research & Development Center(ERDC), Construction Engineering Research Laboratory(CERL)","research\_institution\_link":"http://www.erdc.usace.army.mil/Locations/ConstructionEngineeringResearchLaboratory.aspx","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":15,"size\_kwh":5.33333333333333,"size\_kwh\_hours":5,"size\_kwh\_minutes":20.0,"state":"Illinois","status":"Operational","street\_address":"2902 Newmark Drive","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-10-31T19:29:06Z","updated\_at\_by\_admin":"2014-10-31T19:29:06Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"EnerDel","zip":"61822-1076"}},{"project":{"announcement\_on":"2022-06-23","approval\_status":1,"city":"Isesaki City","commissioning\_on":null,"companion":"1 MW Solar PV, EV Chargers","construction\_on":"2022-07-01","contact\_city":"Kisshoin, Minami-ku","contact\_country":"Japan","contact\_email":"https://www.gs-yuasa.com/en/contact/gyc/index.asp","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"Kyoto","contact\_street\_address":"1, Inobanba-cho, Nishinosho","contact\_zip":"601-8520","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2014-07-09T16:08:35Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"GS Yuasa Gunma Photovoltaic Power Plant is equipped with an independent operation output function and 100 kWh high capacity lithium-ion battery. 100 kW of power supply to the plant is possible as an emergency power source in the event of a power outage.","developer":"GS Yuasa Corporation","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1395,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1395/GS.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1395/thumb\_GS.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1395/partner\_GS.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.2910511,"longitude":139.2558702,"master\_project\_id":null,"name":"GS Yuasa Gunma Photovoltaic Power Plant ESS - GS Yuasa Gunma","om\_contractor":"","organization":"GS Yuasa Corporation","owner\_1":"GS Yuasa Corporation","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.gs-yuasa.com/en/newsrelease/article.php?ucode=gs151006530913\_165","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Transportation Services","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Gunma Prefecture","status":"Operational","street\_address":"671, Sakaikamiyajima","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-25T05:36:59Z","updated\_at\_by\_admin":"2014-08-08T01:25:14Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Tokyo Electric Power Corporation","utility\_type":"Investor Owned","vendor\_company":"GS Yuasa Corporation","zip":""}},{"project":{"announcement\_on":"2022-09-13","approval\_status":0,"city":"Hiraizumi","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Kisshoin, Minami-ku","contact\_country":"Japan","contact\_email":"https://www.gs-yuasa.com/us/inquiry/inquiry.asp","contact\_info\_visible":true,"contact\_name":"GS Yuasa Headquarters, Kyoto","contact\_phone":" ","contact\_state":"Kyoto","contact\_street\_address":"1, Inobanba-cho, Nishinosho","contact\_zip":"601-8520","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2014-07-09T16:08:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"East Japan Railway Company (JR East) installed a 240kWh-capacity GS Yuasa Corporation lithium-ion storage battery system (approximately 12.6 kWh x 19 battery units) at Hiraizumi Station on the Tohoku Line. The station is a model for JR East's \"ecoste\" (Environment Earth Conscious Station of East Japan Railway Company) initiative aimed at powering train stations through renewable energy with zero emissions.\r\nThe electric power supply system at Hiraizumi Station was installed by Mitsubishi Electric Corporation and JR East is aiming to supply all the station's power from solar generation. The lithium-ion storage battery system enables JR East to store excess power generated by the solar panels and supply the power during nighttime hours and inclement weather, maximizing the effective usage of renewable energy.\r\nThe installed lithium-ion storage battery system comprises 114 modules configured in series and parallel. The configuration of multiple LIM50E-12G modules, both in series and parallel, enables simple customization consistent with the customer's voltage and capacity needs.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1396,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1396/Hiraizumi.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1396/thumb\_Hiraizumi.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1396/partner\_Hiraizumi.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.988043,"longitude":141.117499,"master\_project\_id":null,"name":"Environment Earth Conscious Station of East Japan Railway Company","om\_contractor":"","organization":null,"owner\_1":"East Japan Railway Company","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.gsyuasa-lp.com/PDFS/Hiraizumi\_Station\_ESS\_10\_07\_12.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":80,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Iwate","status":"Operational","street\_address":"Hiraizumi Station","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-07-10T16:15:45Z","updated\_at\_by\_admin":"2014-07-10T16:15:45Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"GS Yuasa Corporation","zip":""}},{"project":{"announcement\_on":"2022-10-04","approval\_status":1,"city":"Fujimino","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Kisshoin, Minami-ku","contact\_country":"Japan","contact\_email":"https://www.gs-yuasa.com/us/inquiry/inquiry.asp","contact\_info\_visible":true,"contact\_name":"GS Yuasa Headquarters, Kyoto","contact\_phone":"","contact\_state":"Kyoto","contact\_street\_address":"1, Inobanba-cho, Nishinosho","contact\_zip":"601-8520","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2014-07-09T16:08:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"GS Yuasa Corporation installed an 1800 kW E3 Solution System at the Kami-Fukuoka Station for Tobu Railway Co., Ltd. The regenerative power storage system combines five 360 kW units connected in parallel, each with a converter and lithium-ion battery. \r\n\r\nThe E3 Solution System has been operating since July 2012. The system utilizes power more efficiently by absorbing energy generated during the braking of railcars, storing it in the lithium-ion batteries via the converter and then supplying it to railcars during acceleration. The stored energy is also used to stabilize the overhead contact line voltage. Using regenerative power in this way ensures the safer operation of railcars and acts as an energy-saving measure by reducing railcar electricity consumption. Tobu Railway chose the system to help cope with an increase in the peak-hour operational burden following the introduction of new railcar models and timetable changes.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1397,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1397/Tobu.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1397/thumb\_Tobu.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1397/partner\_Tobu.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.873905,"longitude":139.511692,"master\_project\_id":null,"name":"Tobu Railway Regenerative GS Yuasa Power Storage System","om\_contractor":"","organization":"","owner\_1":"Tobu Railway Co., Ltd.","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.gsyuasa-lp.com/PDFS/GS\_Yuasa\_E3\_Tobu\_Railway\_10\_04\_12.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Transportation Services","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1800,"size\_kwh":0.05,"size\_kwh\_hours":0,"size\_kwh\_minutes":3.0,"state":"Saitama","status":"Operational","street\_address":"Kami-Fukuoka Station","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T23:14:09Z","updated\_at\_by\_admin":"2014-07-10T16:16:45Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"GS Yuasa Corporation","zip":"356-0004"}},{"project":{"announcement\_on":"2022-11-04","approval\_status":1,"city":"Ashibe, Iki","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Kisshoin, Minami-ku","contact\_country":"Japan","contact\_email":"https://www.gs-yuasa.com/us/inquiry/inquiry.asp","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"Kyoto","contact\_street\_address":"1, Inobanba-cho, Nishinosho","contact\_zip":"601-8520","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2014-07-09T16:08:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"GS Yuasa installed a lithium-ion battery system at testing facilities in Iki City, Nagasaki Prefecture in order to study the optimal methods to use storage batteries to control power system frequency fluctuation on remote islands. The system was constructed by Mitsubishi Electric Corporation Kyushu Electric Power Co., Inc., and has been operating successfully at the power company’s Ashibe substation in Iki City since March 2013. The tests are scheduled to continue through fiscal 2014. The lithium-ion battery system is being used to charge and discharge power during periods when power generation from wind, solar and other renewable power sources changes suddenly, thereby stabilizing the amount of power delivered to the power grid and controlling the system’s frequency fluctuation. \r\nThe lithium-ion battery system installed at the testing facilities comprises eight storage battery units, housing 96 LIM50E modules. The entire system is housed within two storage battery enclosures measuring 10 meters wide by 7 meters deep. \r\nSystem Overview: \r\nModule type: LIM50E-12G2-C2 (12-cell modules)\r\nNumber of batteries: 9,216 cells (8 units, each comprising 16 modules connected in series and 6 modules in parallel)\r\nCapacity (kWh): 1,616 (202 x 8 units)\r\nNominal voltage (V): 710.4\r\nDimensions (mm): W4800 x D850 x H2050 (per unit)\r\nMass (kg): Approx. 4,600 (per unit)\r\nCooling system: Self-cooling","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1398,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1398/Ashibe.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1398/thumb\_Ashibe.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1398/partner\_Ashibe.jpg"}},"integrator\_company":"Mitsubishi Electric Corporation","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.801206,"longitude":129.76289,"master\_project\_id":null,"name":"Kyushu Electric Power/GS Yuasa Ashibe Substation ESS Demo","om\_contractor":"","organization":"GS Yuasa Headquarters, 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Jensen","contact\_phone":"435-863-5379","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-10T14:34:25Z","created\_by\_id":263,"debt\_investor":"","decommissioning\_on":null,"desc":"PowerPyramid Energy Storage System\r\n\r\nProject Specs:\r\n300kW – 3 x 100kW grid-tied inverter\r\n1.2MWh – 600 x 180Ah 12V AGM lead-acid batteries\r\n2 x 40’ ISO shipping containers","developer":"","electronics\_provider":"Princeton Power 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Technologies","zip":""}},{"project":{"announcement\_on":"2022-01-08","approval\_status":1,"city":"Golden","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Enfield","contact\_country":"United States","contact\_email":"bill.baschnagel@erigo.com","contact\_info\_visible":false,"contact\_name":"Bill Baschnagel","contact\_phone":"603.632.4156","contact\_state":"New Hampshire","contact\_street\_address":"64 Main Street","contact\_zip":"03748-0899","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-10T15:50:26Z","created\_by\_id":263,"debt\_investor":"","decommissioning\_on":null,"desc":"EaglePicher Technologies has been awarded a contract from Erigo Technologies LLC of Enfield, New Hampshire. Erigo’s contract, funded under the Department of Defense Rapid Innovation Fund and awarded by the U.S. Corp of Engineers on behalf of the U.S. Northern Command, calls for delivery of an innovative system employing multiple battery types and sophisticated control systems to address the frequency, duty cycle, and storage needs of the conventional and renewable power sources that make up many DoD microgrids.\r\n\r\nEPT’s patented PowerPyramid™ hybrid energy storage system can be tailored to quickly and smoothly compensate for load imbalances and power source interruptions. The BESS will undergo testing and evaluation at the U.S. Department of Energy’s Energy System Integration Facility (ESIF), located on the campus of the National Renewable Energy Laboratory’s (NREL) in Golden, Colorado. At the completion of testing, NREL will assist USNORTHCOM in putting the system into service at a to-be-determined military base.\r\n\r\nThe three-tiered, 300 kW/386 kWh PowerPyramid™ grid-tied energy storage system is capable of providing grid stabilization, microgrid support and on-command power response. The hybrid system utilizes Li-Ion, lead-acid and nickel-iron batteries to deliver an appropriate balance of rapidly available energy and total power. The system is designed to be modular so any number of additional tiers could be added to the system at a later date.\r\n\r\n","developer":"Erigo Technologies, EaglePicher Technologies","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Defense Rapid Innovation Fund","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1402,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"EaglePicher Technologies","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.755543,"longitude":-105.2210997,"master\_project\_id":null,"name":"US NORTHCOM BESS project - Erigo Technologies, EaglePicher Technologies","om\_contractor":"","organization":"Erigo Technologies","owner\_1":"US NORTHCOM","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://energystorage.cleantechnology-business-review.com/news/eaglepicher-receives-contract-from-erigo-to-deliver-microgrid-energy-storage-system-for-dod-applications-200214-4181227","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"Yes","research\_desc":"","research\_institution":"National Renewable Energy Laboratory ","research\_institution\_link":"http://www.nrel.gov/esi/esif.html","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"Ramping ","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":300,"size\_kwh":1.28333333333333,"size\_kwh\_hours":1,"size\_kwh\_minutes":17.0,"state":"Colorado","status":"Operational","street\_address":"TBD","systems\_integration":"","technology\_classification":"Electrochemical","technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-07T07:53:59Z","updated\_at\_by\_admin":"2014-07-14T17:49:35Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Confidential","zip":"80401"}},{"project":{"announcement\_on":"2022-06-26","approval\_status":2,"city":"Ogun State","commissioning\_on":null,"companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"e.raaijen@alfen.com","contact\_info\_visible":false,"contact\_name":"Evert Raaijen","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Nigeria","created\_at":"2014-07-10T18:02:55Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Alfen recently developed the Sustainable Off-grid Power Station for Rural Applications (SOPRA) which provides for autonomous energy grids at locations where this was not previously feasible. The basic solution comprises a number of transformers, a battery pack and an advanced regulating system for the batteries, which is very mobile. The solution can therefore be used anywhere in the world. The system pays for itself within only a few years, as it replaces the expenditure on conventional energy sources such as oil and candles. Thanks to these savings in fuel costs, a SOPRA system is the ideal solution for even the poorest of countries.\r\n\r\nThe use of Lithium-ion batteries makes the SOPRA concept 10 times as compact as existing systems, so that the storage technology for approximately 10,000 users fits in a single 20 foot container. The choice for this type of battery also gives the system a long working life, while the batteries can be simply recycled.\r\n\r\nThe system works using solar energy, wind energy or water energy, but also with conventional energy sources as backup. The great advantage is that the sustainably generated energy is stored in the battery pack, rather than being lost. Due to various management and communication systems being integrated in the SOPRA concept, users can pay in a number of ways, consumption can be regulated and the system can be remote controlled. Alfen supplies the SOPRA concept on a turnkey basis, including the sustainable energy generation, the energy storage, the distribution network, the management and service and maintenance.","developer":"ALFEN","electronics\_provider":"ALFEN","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1403,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"ALFEN","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":6.9098333,"longitude":3.2583626,"master\_project\_id":null,"name":"SOPRA: Food-processing factory Sustainable Powerplant","om\_contractor":"ALFEN","organization":null,"owner\_1":"Confidential","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.alfen.com/en/products/text/sopra/35","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1100,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Ogun State","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-09T23:28:05Z","updated\_at\_by\_admin":"2016-05-09T23:28:05Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Valence Technology","zip":""}},{"project":{"announcement\_on":"2022-07-11","approval\_status":1,"city":"Mukilteo","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Mukilteo","contact\_country":"United States","contact\_email":"info@uetechnologies.com","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"425.290.8898","contact\_state":"Washington","contact\_street\_address":"4333 Harbour Pointe Blvd SW, Suite A","contact\_zip":"98275","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-11T18:00:28Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"UniEnergy Technology (UET) has installed its patented vanadium flow battery system adjacent to its facility in Washington. The 1.8 MWh system provides 600 kW of peak power.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1404,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1404/uet.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1404/thumb\_uet.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1404/partner\_uet.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.8887886,"longitude":-122.2913533,"master\_project\_id":null,"name":"UET HQ Mukilteo BESS","om\_contractor":"","organization":"UniEnergy Technologies, LLC","owner\_1":"UniEnergy Technologies","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.uetechnologies.com/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":600,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Washington","status":"Operational","street\_address":"4333 Harbour Pointe Blvd SW, Suite A","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-24T01:55:06Z","updated\_at\_by\_admin":"2014-07-11T18:20:19Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"UniEnergy Technologies","zip":"98275"}},{"project":{"announcement\_on":"2022-07-08","approval\_status":2,"city":"Everett","commissioning\_on":"2022-11-01","companion":"","construction\_on":null,"contact\_city":"Everett","contact\_country":"United States","contact\_email":"jazyskowski@snopud.com","contact\_info\_visible":false,"contact\_name":"Jason Zyskowski","contact\_phone":"425-783-4332","contact\_state":"Washington","contact\_street\_address":"1802 - 75th Street S.W.","contact\_zip":"98206-1107","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-11T18:16:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Snohomish County Public Utility District (SNOPUD) will install a 6.4 MWh UniEnergy Technologies (UET) vanadium flow battery system utilizing MESA standards.","developer":"Snohomish County Public Utility District","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Washington State Clean Energy Fund","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1405,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"1Energy Systems LLC","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.9789848,"longitude":-122.2020794,"master\_project\_id":null,"name":"Snohomish PUD - MESA 2","om\_contractor":"Snohomish County Public Utility District","organization":null,"owner\_1":"Snohomish County Public Utility District","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.snopud.com/newsroom.ashx?173\_na=269","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"Yes","research\_desc":"","research\_institution":"DOE Pacific Northwest National Laboratory","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Washington","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-02T23:11:12Z","updated\_at\_by\_admin":"2016-08-02T23:11:12Z","updated\_by":null,"updated\_by\_email":null,"utility":"Snohomish County Public Utility District","utility\_type":"Public Owned","vendor\_company":"UniEnergy Technologies","zip":""}},{"project":{"announcement\_on":"2022-07-10","approval\_status":1,"city":"Pullman","commissioning\_on":"2022-06-17","companion":"","construction\_on":null,"contact\_city":"Mukilteo","contact\_country":"United States","contact\_email":"info@uetechnologies.com","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"425.290.8898","contact\_state":"Washington","contact\_street\_address":"4333 Harbour Pointe Blvd SW, Suite A","contact\_zip":"98275","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-11T19:32:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Avista Utilities was awarded $3.2 million for the project which includes installing a 1 MW/3.2 MWh UET vanadium flow battery in Pullman, Wash., to support WSU’s smart campus operations. PNNL will collaborate with WSU to develop a control strategy for this project. Avista is participating in the Pacific Northwest Smart Grid Demonstration Project and previously received a DOE Smart Grid Investment Grant.\r\n\r\nThe Uni.System will be used by the customer, Avista Utilities, for load shifting, frequency regulation, and conservation voltage regulation on the Turner distribution circuit.   The UET solution will also support Avista’s end‐user, manufacturer Schweitzer Engineering Laboratories (SEL), with UPS, black start, and 4‐cycle ride‐through.  SEL is a global leader in protective relays and other grid equipment.  The project is\r\nfunded in part by the Washington State Clean Energy Fund, proposed by Gov. Jay Inslee and approved by the Legislature in 2013.  Over $14 million in matching grants were awarded to Avista, Puget Sound Energy, and Snohomish Public Utility District for projects to demonstrate battery technologies in the electrical grid.  As a result, Washington is now one of the market leaders in energy storage in the U.S. ","developer":"Avista Utilities","electronics\_provider":"Northern Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":3200000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Washington State Clean Energy Fund","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1406,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1406/1406\_uet\_1mw.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1406/thumb\_1406\_uet\_1mw.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1406/partner\_1406\_uet\_1mw.jpg"}},"integrator\_company":"1Energy","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.7273316,"longitude":-117.1469492,"master\_project\_id":null,"name":"Washington State University 1 MW UET Flow Battery - Avista Utilities","om\_contractor":"","organization":"UniEnergy Technologies, LLC","owner\_1":"Avista Utilities","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://avistacorp.mwnewsroom.com/News/in/Avista%E2%80%99s-Energy-Storage-Project-is-energized-by-Go","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"Washington State University","research\_institution\_link":"http://smartgrid.wsu.edu/","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Load Following (Tertiary Balancing)","service\_use\_case\_6":"Microgrid Capability","service\_use\_case\_7":"Ramping ","service\_use\_case\_8":"Voltage Support","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":3.2,"size\_kwh\_hours":3,"size\_kwh\_minutes":12.0,"state":"Washington","status":"Operational","street\_address":"100 Dairy Road","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:12:05Z","updated\_at\_by\_admin":"2016-04-13T18:53:44Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Avista Utilities","utility\_type":"Investor Owned","vendor\_company":"UniEnergy Technologies","zip":"99164-1150"}},{"project":{"announcement\_on":"2022-07-10","approval\_status":0,"city":"Bellevue","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Patrick.Leslie@pse.com","contact\_info\_visible":false,"contact\_name":"Patrick Leslie","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-11T20:28:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Puget Sound Energy of Bellevue, Wash., was awarded $3.8 million. Its project includes installing a BYD 2 MW/4.4 MWh lithium iron phosphate battery. As part of a previous project that was jointly funded by the Bonneville Power Administration, Primus Power, Puget Sound Energy and DOE, PNNL analyzed the costs and benefits associated with installing energy storage at various sites within PSE’s service territory.\r\n\r\nUse cases include: (1) Energy shifting; (2) Provide grid flexibility; (3) Improve distribution systems efficiency; (4) Outage management of critical loads; and (5) Optimal utilization of energy storage.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":3800000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Washington State Clean Energy Fund","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1407,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.610377,"longitude":-122.2006786,"master\_project\_id":null,"name":"PSE Storage Innovation Project 2","om\_contractor":"","organization":null,"owner\_1":"Puget Sound Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://cleanenergyexcellence.org/avista-puget-sound-energy-and-snohomish-county-pud-awarded-smart-grid-grants/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Transmission Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":2000,"size\_kwh":2.2,"size\_kwh\_hours":2,"size\_kwh\_minutes":12.0,"state":"Washington","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-14T21:56:46Z","updated\_at\_by\_admin":"2014-07-11T20:29:57Z","updated\_by":null,"updated\_by\_email":null,"utility":"Puget Sound Energy","utility\_type":"Investor Owned","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Rise Carr, Darlington","commissioning\_on":"2022-09-01","companion":"Primary Substation","construction\_on":"2022-01-01","contact\_city":"Shiremoor","contact\_country":"United Kingdom","contact\_email":"Ian.Lloyd@northernpowergrid.com","contact\_info\_visible":false,"contact\_name":"Ian Lloyd","contact\_phone":"0191 2294221","contact\_state":"Newcastle upon Tyne","contact\_street\_address":"New York Road","contact\_zip":"NE27 0LP","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2014-07-17T16:12:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Northern Powergrid’s Customer-Led Network Revolution (CLNR) project is assessing the potential for new network technology and flexible customer response, to facilitate speedier and more economical take-up by customers of low-carbon technologies and the connection to the distribution network of increasing amounts of low carbon or renewable energy generation. The project is partially funded by Ofgem Low Carbon Networks Fund. \r\n\r\nIt includes six NEC Energy Solutions GSS units commissioned in 2013 in three different areas. The strategic siting, both rural and urban, represents different grid situations, and it is estimated that the placements offer a representative sample of 80% of the entire UK power grid.\r\n\r\nWatch a time-lapse video of the Rise Carr installation: http://goo.gl/R43c7c\r\n\r\nWatch a video from Northern Powergrid describing all the projects here: http://goo.gl/OtTVIo","developer":"Northern Powergrid","electronics\_provider":"Dynapower","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"Northern Powergrid DNO 10%","funding\_source\_3":"","funding\_source\_details\_1":"Office of the Gas and Electricity Markets (Ofgem), Low Carbon Networks Fund","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1410,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1410/7305-008.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1410/thumb\_7305-008.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1410/partner\_7305-008.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":54.5458828,"longitude":-1.5555136,"master\_project\_id":"---\n- '1411'\n- '1413'\n","name":"Northern Powergrid CLNR EES1","om\_contractor":"","organization":"","owner\_1":"Northern Powergrid","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.networkrevolution.co.uk/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"The Customer-Led Network Revolution project is assessing the potential for new network technology and flexible customer response to facilitate speedier and more economical take‐up by customers of low‐carbon technologies and the connection to the distribution network of increasing amounts of low carbon or renewable energy generation.","research\_institution":"Newcastle Uni, Durham uni, EATL, British Gas","research\_institution\_link":"http://www.networkrevolution.co.uk/","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":2500,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"North East","status":"Operational","street\_address":"Rise Carr Substation","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T17:57:11Z","updated\_at\_by\_admin":"2016-05-17T00:10:53Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Northern Powergrid","utility\_type":"Investor Owned","vendor\_company":"NEC Energy Solutions, Inc. (A123 Systems)","zip":"DL3 0HJ"}},{"project":{"announcement\_on":"2022-06-05","approval\_status":1,"city":"Rise Carr, Darlington","commissioning\_on":"2022-09-01","companion":"Distribution Substation","construction\_on":"2022-01-01","contact\_city":"Shiremoor","contact\_country":"United Kingdom","contact\_email":"Ian.Lloyd@northernpowergrid.com","contact\_info\_visible":false,"contact\_name":"Ian Lloyd","contact\_phone":"192 2294221","contact\_state":"Newcastle upon Tyne","contact\_street\_address":"New York Road","contact\_zip":"NE27 0LP","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2014-07-17T16:12:26Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Northern Powergrid’s Customer-Led Network Revolution (CLNR) project is assessing the potential for new network technology and flexible customer response, to facilitate speedier and more economical take-up by customers of low-carbon technologies and the connection to the distribution network of increasing amounts of low carbon or renewable energy generation. 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(A123 Systems)","zip":"DL1 1UW"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Denwick","commissioning\_on":"2022-09-01","companion":"Distribution Substation","construction\_on":"2022-01-01","contact\_city":"Shiremoor","contact\_country":"United Kingdom","contact\_email":"Ian.Lloyd@northernpowergrid.com","contact\_info\_visible":false,"contact\_name":"Ian Lloyd","contact\_phone":"193 2294221","contact\_state":"Newcastle upon Tyne","contact\_street\_address":"New York Road","contact\_zip":"NE27 0LP","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2014-07-17T16:12:26Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Northern Powergrid’s Customer-Led Network Revolution (CLNR) project is assessing the potential for new network technology and flexible customer response, to facilitate speedier and more economical take-up by customers of low-carbon technologies and the connection to the distribution network of increasing amounts of low carbon or renewable energy generation. 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(A123 Systems)","zip":"ne71 6nz"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Rise Carr, Darlington","commissioning\_on":"2022-09-01","companion":"Distribution Substation","construction\_on":"2022-01-01","contact\_city":"Shiremoor","contact\_country":"United Kingdom","contact\_email":"Ian.Lloyd@northernpowergrid.com","contact\_info\_visible":false,"contact\_name":"Ian Lloyd","contact\_phone":"194 2294221","contact\_state":"Newcastle upon Tyne","contact\_street\_address":"New York Road","contact\_zip":"NE27 0LP","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2014-07-17T16:12:27Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Northern Powergrid’s Customer-Led Network Revolution (CLNR) project is assessing the potential for new network technology and flexible customer response, to facilitate speedier and more economical take-up by customers of low-carbon technologies and the connection to the distribution network of increasing amounts of low carbon or renewable energy generation. 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(A123 Systems)","zip":"DL1 3EL"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Wooler","commissioning\_on":"2022-09-01","companion":"Distribution Substation","construction\_on":"2022-01-01","contact\_city":"Shiremoor","contact\_country":"United Kingdom","contact\_email":"Ian.Lloyd@northernpowergrid.com","contact\_info\_visible":false,"contact\_name":"Ian Lloyd","contact\_phone":"195 2294221","contact\_state":"Newcastle upon Tyne","contact\_street\_address":"New York Road","contact\_zip":"NE27 0LP","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2014-07-17T16:12:27Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Northern Powergrid’s Customer-Led Network Revolution (CLNR) project is assessing the potential for new network technology and flexible customer response, to facilitate speedier and more economical take-up by customers of low-carbon technologies and the connection to the distribution network of increasing amounts of low carbon or renewable energy generation. The project is partially funded by Ofgem Low Carbon Networks Fund.\r\n\r\nIt includes six NEC Energy Solutions GSS units commissioned in 2013 in three different areas. The strategic siting, both rural and urban, represents different grid situations, and it is estimated that the placements offer a representative sample of 80% of the entire UK power grid.\r\n\r\nWatch a video from Northern Powergrid describing all the projects here: http://goo.gl/OtTVIo","developer":"Northern Powergrid","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"Northern Powergrid DNO 10%","funding\_source\_3":"","funding\_source\_details\_1":"Office of the Gas and Electricity Markets (Ofgem), Low Carbon Networks Fund","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1414,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1414/woolerstmary.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1414/thumb\_woolerstmary.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1414/partner\_woolerstmary.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":55.5455191,"longitude":-2.0128731,"master\_project\_id":null,"name":"Customer-Led Network Revolution EES3-2 - Northern Powergrid","om\_contractor":"","organization":"Northern Powergrid","owner\_1":"Northern Powergrid","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.networkrevolution.co.uk/","primary\_reference1":"http://energysuperstore.org/esrn/latest-news/smart-grid-trial-northern-powergrid-completes-six-energy-storage-installations/","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"Customer-Led Network RevolutionThe Customer-Led Network Revolution project is assessing the potential for new network technology and flexible customer response to facilitate speedier and more economical take‐up by customers of low‐carbon technologies and the connection to the distribution network of increasing amounts of low carbon or renewable energy generation.","research\_institution":"Newcastle Uni, Durham uni, EATL, British Gas","research\_institution\_link":"http://www.networkrevolution.co.uk/","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":50,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Northumberland","status":"Operational","street\_address":"Wooler St. Mary","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-26T07:28:20Z","updated\_at\_by\_admin":"2016-05-17T00:12:39Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Northern Powergrid","utility\_type":"Investor Owned","vendor\_company":"NEC Energy Solutions, Inc. 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The project is partially funded by Ofgem Low Carbon Networks Fund.\r\n\r\nIt includes six NEC Energy Solutions GSS units commissioned in 2013 in three different areas. The strategic siting, both rural and urban, represents different grid situations, and it is estimated that the placements offer a representative sample of 80% of the entire UK power grid.\r\n\r\nWatch a video from Northern Powergrid describing all the projects here: http://goo.gl/OtTVIo","developer":"Northern Powergrid","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"Northern Powergrid DNO 10%","funding\_source\_3":"","funding\_source\_details\_1":"Office of the Gas and Electricity Markets (Ofgem), Low Carbon Networks Fund","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1415,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1415/Elgar\_email.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1415/thumb\_Elgar\_email.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1415/partner\_Elgar\_email.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":53.419727,"longitude":-1.18526,"master\_project\_id":null,"name":"Customer-Led Network Revolution ESS3-3 - Northern Powergrid","om\_contractor":"","organization":"Northern Powergrid","owner\_1":"Northern Powergrid","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.networkrevolution.co.uk/","primary\_reference1":"http://energysuperstore.org/esrn/latest-news/smart-grid-trial-northern-powergrid-completes-six-energy-storage-installations/","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"The Customer-Led Network Revolution project is assessing the potential for new network technology and flexible customer response to facilitate speedier and more economical take‐up by customers of low‐carbon technologies and the connection to the distribution network of increasing amounts of low carbon or renewable energy generation.","research\_institution":"Newcastle Uni, Durham uni, EATL, British Gas","research\_institution\_link":"http://www.networkrevolution.co.uk/","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"Transmission upgrades due to solar","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":50,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"South Yorkshire","status":"Operational","street\_address":"Mortimer Road","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-26T07:30:05Z","updated\_at\_by\_admin":"2016-05-17T00:15:29Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Northern Powergrid","utility\_type":"Investor Owned","vendor\_company":"NEC Energy Solutions, Inc. (A123 Systems)","zip":"s66 7pz"}},{"project":{"announcement\_on":"2022-03-13","approval\_status":2,"city":"Newington","commissioning\_on":null,"companion":"","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"Australia","contact\_email":"news@ausgrid.com.au","contact\_info\_visible":false,"contact\_name":"Jamal Cheeba, Ausgrid","contact\_phone":"1300 922 746","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2014-07-18T16:50:54Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"NSW network operator Ausgrid tested a 60kW battery storage system in the Sydney suburb of Newington to see how it can help manage summer peak demand events.\r\n\r\nAusgrid's Smart Grid, Smart City (SGSC) was a $100 million Australian government funded project, led by Ausgrid and supported by our consortium partners. ","developer":"Ausgrid","electronics\_provider":"ZEN Energy Systems","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1416,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/1416/rr.png","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/1416/thumb\_rr.png"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/1416/partner\_rr.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-33.8341736,"longitude":151.0566995,"master\_project\_id":null,"name":"Ausgrid SGSC - ZEN 60kW BESS","om\_contractor":"","organization":null,"owner\_1":"Ausgrid","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.smartgridsmartcity.com.au/Media-Releases/2013/March/Newington-grid-battery-trial.aspx?page=1&year=&month=&id=b3fa7fd7-efef-4dd9-a5b1-4beb193423a2","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"http://www.smartgridsmartcity.com.au/","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Distribution upgrade due to solar","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":60,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"New South Wales","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-12T20:52:56Z","updated\_at\_by\_admin":"2014-08-12T20:52:56Z","updated\_by":null,"updated\_by\_email":null,"utility":"Ausgrid","utility\_type":"State/Municipal Owned","vendor\_company":"Greensmith","zip":"2127"}},{"project":{"announcement\_on":"2022-05-01","approval\_status":1,"city":"Tehachapi","commissioning\_on":"2022-03-12","companion":"Wind","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"mgravely@energy.state.ca.us","contact\_info\_visible":false,"contact\_name":"Mike Gravely","contact\_phone":"916-327-1370","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Alternative Energy Systems Consulting","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-21T17:29:12Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This Beacon Flywheel Energy Storage System (FESS) is the continuation of the system at the PG&E San Ramon research center. After successful trials, Beacon swapped the seven 15 kW system for a one 100 kW system. The project was funded and owned by the California Energy Commission (CEC) and the single 100 kW unit is was deployed to the Southern California Edison Tehachapi Windfarm in 2010.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"California Energy Commission - Public Interest Energy Research (PIER)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1417,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":35.1321877,"longitude":-118.4489739,"master\_project\_id":null,"name":"SCE Tehachapi Beacon Gen 4 FESS","om\_contractor":"","organization":"California Energy Commission","owner\_1":"California Energy Commission","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.businesswire.com/news/home/20100312005447/en/Beacon-Power-Connects-Flywheel-Energy-Storage-System#.U81KNfldV8E","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transmission upgrades due to wind","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2018-02-25T06:25:10Z","updated\_at\_by\_admin":"2014-07-21T17:42:33Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Beacon Power, LLC","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Tyngsboro","commissioning\_on":"2022-11-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ehunt@beaconpower.com","contact\_info\_visible":false,"contact\_name":"Gene Hunt","contact\_phone":"978-661-2825","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-21T17:48:32Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Located at Beacon Power headquarters, this 0.5 MW Flywheel Energy Storage System (FESS) supplies frequency regulation services to ISO-NE.","developer":"Beacon Power, LLC","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1418,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.6608824,"longitude":-71.4067111,"master\_project\_id":null,"name":"Beacon Power 500 kW Flywheel (Tyngsboro, MA) - Beacon Power, LLC","om\_contractor":"","organization":"Beacon Power, LLC","owner\_1":"Beacon Power, LLC","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://beaconpower.com/tyngsboro-massachusetts/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Massachusetts","status":"Operational","street\_address":"65 Middlesex Road","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-12-28T04:32:29Z","updated\_at\_by\_admin":"2016-04-06T23:50:45Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Beacon Power, LLC","zip":"01879"}},{"project":{"announcement\_on":"2022-07-18","approval\_status":1,"city":"Boothbay","commissioning\_on":"2022-04-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ttemchin@convergentep.com","contact\_info\_visible":true,"contact\_name":"Tremor Temchin","contact\_phone":"310.562.2423","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-21T18:39:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"GridSolar contracted Convergent Energy + Power to design, install and operate a 500 kW / 3 MWh energy storage system in Boothbay, Maine, as part of a “Non-Transmission Alternative” pilot program. Convergent commissioned the system in April 2015. The battery-powered storage system is a part of Central Maine Power’s plan to provide load reduction on its transmission line to the Boothbay region.","developer":"Convergent Energy + Power","electronics\_provider":"C&D Technologies","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1419,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1419/headerimage.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1419/thumb\_headerimage.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1419/partner\_headerimage.jpg"}},"integrator\_company":"Lockheed Martin Energy Storage","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":43.8993343,"longitude":-69.6203084,"master\_project\_id":null,"name":"GridSolar Boothbay Pilot Project: BESS","om\_contractor":"Convergent Energy + Power","organization":"Convergent Energy + Power","owner\_1":"Convergent Energy + Power","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.convergentep.com/52/","primary\_reference1":"http://www.convergentep.com/projects/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"Transmission Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":500,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Maine","status":"Operational","street\_address":"112 Industrial Park Road","systems\_integration":"","technology\_classification":"","technology\_type":"Valve Regulated Lead-acid Battery","technology\_type\_l1":"Valve Regulated Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-28T04:19:20Z","updated\_at\_by\_admin":"2015-05-07T23:55:43Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Central Maine Power","utility\_type":"Investor Owned","vendor\_company":"Convergent Energy + Power","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Miyakojima","commissioning\_on":"2022-10-15","companion":"4 MW Solar PV, Wind, Thermal Plant","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2014-07-22T20:35:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project was aimed at understanding what impacts the widespread introduction of solar power generation, whose output fluctuates widely, would have on the power transmission and distribution network (grid) and verifying the control function that benefits grid stabilization using secondary batteries. The system utilizes 8 sets of 0.5 MW NaS batteries.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Ministry of Economy, Trade and Industry (METI)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1424,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1424/dd.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1424/thumb\_dd.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1424/partner\_dd.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":24.730068,"longitude":125.417644,"master\_project\_id":null,"name":"Miyako Island Mega-Solar Demo: NaS","om\_contractor":"Okinawa Electric Power Company","organization":"N/A","owner\_1":"Okinawa Electric Power Company","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://techon.nikkeibp.co.jp/english/NEWS\_EN/20140107/326100/?ST=msbe&P=2","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"NEDO","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":4000,"size\_kwh":7.2,"size\_kwh\_hours":7,"size\_kwh\_minutes":12.0,"state":"Okinawa Prefecture","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-27T02:52:03Z","updated\_at\_by\_admin":"2014-11-07T21:42:57Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Okinawa Electric Power Company","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Miyakojima","commissioning\_on":"2022-10-15","companion":"Solar PV, Wind, Thermal Plant","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2014-07-22T20:35:18Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project was aimed at understanding what impacts the widespread introduction of solar power generation, whose output fluctuates widely, would have on the power transmission and distribution network (grid) and verifying the control function that benefits grid stabilization using secondary batteries. The system utilizes 25 sets of 8 kWh Li-Ion batteries.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Ministry of Economy, Trade and Industry (METI)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1425,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1425/mi.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1425/thumb\_mi.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1425/partner\_mi.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":24.729524,"longitude":125.4196,"master\_project\_id":null,"name":"Miyako Island Mega-Solar Demo Lithium Ion ESS","om\_contractor":"Okinawa Electric Power Company","organization":"N/A","owner\_1":"Okinawa Electric Power Company","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://tech.nikkeibp.co.jp/dm/english/NEWS\_EN/20140107/326100/?ST=msbe?ST=msbe&P=2","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"NEDO","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":100,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Okinawa Prefecture","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-25T06:37:53Z","updated\_at\_by\_admin":"2014-10-15T21:33:20Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Okinawa Electric Power Company","utility\_type":"","vendor\_company":"Toshiba","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"San Francisco","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@electrictrees.com","contact\_info\_visible":true,"contact\_name":"Stacey Reineccius","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Panasonic Enterprise Solutions Company","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-23T17:42:58Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Comprised of 68 initial distinct locations in multi-unit residential properties, the Powertree San Francisco One project aggregates to a total of 3.26 MW of power and 3.5 MM of energy along with 2.5 MW of controllable EV charging.\r\n\r\nPowertree's patented and patent pending architecture enables multiple streams of benefit to participating parties in a given installation:\r\n\r\n- Grid Services are enabled via aggregated dispatchability of power for regulation services at 4 second intervals\r\n- Electrical vehicle charging is provided to serve 100% of currently shipping vehicle models at up to 18 KW per vehicle\r\n- Vehicle Grid Integration capability in place to allow both V1g (smart controlled charging from grid side) and V2G (bi-directional energy flow)\r\n- On site solar generation is used to provide solar energy credit to local tenants or to act as back up generation in the case of grid outage \r\n- System can operate and maintain functionality during extended grid outages servicing vehicles and building concurrently\r\n- Convenient and accessible high rate of charge EV charging for San Francisco area EV drivers. \r\n\r\nPowertree is planning 2500 locations in California.","developer":"Powertree Services Inc.","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1426,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1426/Mobility2-Powertree\_Photo1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1426/thumb\_Mobility2-Powertree\_Photo1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1426/partner\_Mobility2-Powertree\_Photo1.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":37.7749295,"longitude":-122.4194155,"master\_project\_id":null,"name":"Powertree Services San Francisco One","om\_contractor":"","organization":"","owner\_1":"Powertree Services Inc.","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.electrictrees.com/wp-content/uploads/2015/04/panasonic.pdf","primary\_reference1":"https://cleantechnica.com/2015/01/02/solar-powered-ev-charging-stations-san-francisco/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Transportation 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PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"solarsklar@aol.com","contact\_info\_visible":false,"contact\_name":"Scott Sklar, The Stella group","contact\_phone":"202-347-2214","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"SilTek Inc.","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-24T15:11:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Washington Navy Yard Visitor's Center Net Zero Energy project was completed in 2012. Various technologies were employed to achieve this including spray-foam and blown-in cellulose insulation, electrochromic windows, LED lighting, and a new geothermal heat-pump HVAC system. There are also Solar Panels and Micro-Wind turbines on the adjacent parking structure that tie into a cutting edge hybrid-gel battery system which can power the building in the event of a power failure. \r\n\r\nThe battery system was supplied by Axion Power International. It consists of a full 36 PbC battery mini-Powercube system. The project hosts a 31 kW PV system and two wind turbines tied to a a smart lead-carbon-supercapacitor battery bank. The renewable energy system sustains the building and only brings in electric power from the grid if the battery bank cannot meet the electric load, primarily in summer. ","developer":"SilTek Inc.","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1427,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":38.8736103,"longitude":-76.995572,"master\_project\_id":null,"name":"DC Naval Yard Zero Energy Building","om\_contractor":"","organization":null,"owner\_1":"US Navy","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.axionpower.com/profiles/investor/ResLibraryView.asp?ResLibraryID=49925&GoTopage=7&Category=1562&BzID=1933&G=680","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Electric Bill Management with Renewables","service\_use\_case\_4":"On-Site Power","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":16,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"District of Columbia","status":"Operational","street\_address":"720 Kennon Street SE","systems\_integration":"","technology\_classification":"","technology\_type":"Lead Carbon Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-12T19:33:20Z","updated\_at\_by\_admin":"2014-08-12T19:33:20Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Axion Power International Inc.","zip":"20374"}},{"project":{"announcement\_on":"2022-07-24","approval\_status":1,"city":"El Paso","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"rlobato@epcc.edu","contact\_info\_visible":false,"contact\_name":"Richard Lobato","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-24T16:12:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"As the fastest growing community college in Texas, El Paso Community College (EPCC) needed to meet the needs of an increasing student population and the third highest electric utility rates in the nation. The college turned to energy-efficient solutions including 89 energy storage tanks which they installed at 3 different campus locations. \r\n\r\nThe Rio Grande Campus has 12 thermal storage units.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1428,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1428/rr.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1428/thumb\_rr.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1428/partner\_rr.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":31.7639721,"longitude":-106.4937799,"master\_project\_id":null,"name":"EPCC Thermal Storage: Rio Grande","om\_contractor":"","organization":"El Paso Community College","owner\_1":"El Paso Community College","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.trane.com/commercial/Uploads/pdf/newsRoom/EL%20Paso%20Community%20College%20news%20release%20FINAL%20080910%20\_3\_.pdf","primary\_reference1":"","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":180,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"100 West Rio Grande Street","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-05T05:58:04Z","updated\_at\_by\_admin":"2014-08-07T21:58:18Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"El Paso Electric Company","utility\_type":"Public Owned","vendor\_company":"Trane (formerly CALMAC)","zip":""}},{"project":{"announcement\_on":"2022-07-24","approval\_status":1,"city":"El Paso","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"rlobato@epcc.edu","contact\_info\_visible":false,"contact\_name":"Richard Lobato","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-24T16:13:29Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"As the fastest growing community college in Texas, El Paso Community College (EPCC) needed to meet the needs of an increasing student population and the third highest electric utility rates in the nation. The college turned to energy-efficient solutions including 89 energy storage tanks at 3 different campus locations. \r\n\r\nThe Transmountain Campus has 15 units.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1429,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1429/TM2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1429/thumb\_TM2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1429/partner\_TM2.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":31.8855883,"longitude":-106.4404367,"master\_project\_id":null,"name":"EPCC Thermal Storage: Transmountain","om\_contractor":"","organization":"El Paso Community College","owner\_1":"El Paso Community College","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.trane.com/commercial/Uploads/pdf/newsRoom/EL%20Paso%20Community%20College%20news%20release%20FINAL%20080910%20\_3\_.pdf","primary\_reference1":"","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":225,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"9570 Gateway Boulevard Noth","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-03T08:16:04Z","updated\_at\_by\_admin":"2014-08-07T21:55:17Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"El Paso Electric Company","utility\_type":"Public Owned","vendor\_company":"Trane (formerly CALMAC)","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Philadelphia","commissioning\_on":"2022-08-15","companion":"","construction\_on":"2022-11-30","contact\_city":"Philadelphia","contact\_country":"United States","contact\_email":"dmontvydas@septa.org","contact\_info\_visible":false,"contact\_name":"David Montvydas","contact\_phone":"215-580-8010","contact\_state":"Pennsylvania","contact\_street\_address":"1234 Market Street","contact\_zip":"19107","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1800000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-24T16:54:54Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Energy Optimization project is designed to capture energy from rail cars through a regenerative braking process and then utilize the energy for accelerating trains, and to generate revenue through demand-side participation in power markets.\r\n\r\nMaxwell Technologies Ultracapacitors (rated at 70 kW continuous, and 3.45 kWh (useable), 4.6 kWh (absolute), in combination with a Saft Intensium Max 20P Li-ion battery, will capture train braking energy and then discharge it back to the third rail (power rail) to power trains leaving the station. The system will provide regenerative braking charge acceptance for SEPTA trains and power discharge back to the station to support rail traffic while simultaneously participating in the PJM Interconnection market for frequency regulation.\r\n\r\nABB is integrating the system with their power electronics.","developer":"Viridity Energy","electronics\_provider":"ABB Envitech, Inc. 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phase 480 Vac\r\n• Kenetech/Trace","developer":"Applied Power Corporation","electronics\_provider":"Kenentech, Trace","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Office of Power Technologies","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1433,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1433/dang.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1433/thumb\_dang.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1433/partner\_dang.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.128587,"longitude":-111.084049,"master\_project\_id":null,"name":"Dangling Rope Marina Hybrid Power System - 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This is a milestone and one of the many Smart Grid initiatives being implemented in the Sector that will contribute to accomplishing the 2030 vision of having a fully integrated \"SMART UTILITY\". The ADWEA BESS are one of the energy management systems used for purposes of leveling the electricity load curve in order to reduce the high cost of running peak load electrical generation. Such benefit is accomplished by storing excess available energy at night and injecting such energy back into the electrical grid during the day. The implementation of the BESS also develops a reserved distributed generation for emergency supply and contributes to the spinning reserve.","developer":"","electronics\_provider":"NGK Insulators Ltd.","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1442,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1442/abu.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1442/thumb\_abu.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1442/partner\_abu.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":24.466667,"longitude":54.366667,"master\_project\_id":null,"name":"ADWEA NaS 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787-772-5366","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Aireko","contractor\_2":"United Engineers & Constructors","contractor\_3":"","cost\_CAPEX":20300000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-28T18:11:39Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-12-01","desc":"The PREPA was a fully commercial battery system that was acquired for daily operation in a frequency control and spinning reserve mode for the island grid of Puerto Rico. The grid had ongoing stability issues, and routinely had frequency and voltage excursions that could only be controlled by aggressive load-shedding, unless new generation was added to provide regulation and stability. The choices for new generation included fast-acting combustion turbines or battery energy storage. PREPA's analysis showed that battery energy storage systems offered superior operational benefits due to their faster reaction times, both for frequency regulation and spinning reserve requirements.\r\n\r\nThe comparable slower response times of combustion turbines required more installed capacity, whereas the faster reaction time of a battery system meant that a much smaller battery could offer the same functionality as larger sizes of combustion turbines. Typically, battery systems can reach full operating power in less than 1 second, whereas mechanical systems such as combustion turbines need several seconds to minutes to reach their full power output. The seemingly small difference in reaction times translates into very large consequences for the stability of the electric grid, where events that lead to outages propagate within cycles, and a difference of 1 min translates to a complete blackout under some conditions. Thus, it was shown that battery systems were a more cost effective option compared to combustion turbines because a smaller battery could outperform a much larger block of combustion turbines. This is particularly applicable to an \"island\" system, where there is no interconnection with a neighboring system to balance the momentary shortage of generation resources during an operational contingency.\r\n\r\nThe PREPA battery was patterned after the BEWAG battery in application as well as battery type. Valve-regulated lead-acid (VRLA) batteries were commercially available by the time the PREPA battery project was started, but PREPA chose a flooded, flat-plate cell because it had a proven track record at BEWAG. However, once utility operations began in 1994, the battery was cycled more frequently than planned, which caused the battery to age more rapidly than expected. This use led to positive-plate growth, which caused cell / jar cracks, leaks, short circuits, and ultimately early battery failure.\r\n\r\nPREPA made the decision in 2001 to repower, or replace, the battery. A tubular positive plate, flooded battery was selected, and the new battery was installed in mid-2004. Several problems occurred, however, and the system was taken out of service.","developer":"Puerto Rico Electric Power Authority (PREPA)","electronics\_provider":"General Electric (GE)","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1444,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1444/pr.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1444/thumb\_pr.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1444/partner\_pr.png"}},"integrator\_company":"Leeds & Northrup, Applied Control Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":18.3978052,"longitude":-66.0104825,"master\_project\_id":null,"name":"Puerto Rico Electric Power Authority (PREPA) Battery System","om\_contractor":"Puerto Rico Electric Power Authority (PREPA)","organization":null,"owner\_1":"Puerto Rico Electric Power Authority (PREPA)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"See Sandia's \"Lessons Learned\": http://goo.gl/9YI8t6","primary\_reference":"http://goo.gl/9YI8t6","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":20000,"size\_kwh":0.7,"size\_kwh\_hours":0,"size\_kwh\_minutes":42.0,"state":"Puerto Rico","status":"De-Commissioned","street\_address":"Sabana Llana Substation","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-29T00:08:27Z","updated\_at\_by\_admin":"2016-06-29T00:08:27Z","updated\_by":null,"updated\_by\_email":null,"utility":"Puerto Rico Electric Power Authority (PREPA)","utility\_type":"State/Municipal Owned","vendor\_company":"C&D Technologies","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"San Juan","commissioning\_on":"2022-08-01","companion":"","construction\_on":"2022-05-01","contact\_city":"","contact\_country":"","contact\_email":"j-pueyo@prepa.com","contact\_info\_visible":false,"contact\_name":"Javier Pueyo, j-pueyo@prepa.com, 787-772-5171 Rafael Ruiz, re-ruiz@prepa.com, 787-275-7054 Angel Colon, al-colon@prepa.com, 787-772-5366","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":11500000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-28T18:54:00Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-01-01","desc":"This system replaced the BESS de-commissioned in 1999.\r\nThe 20 MW Battery Energy Storage System, BESS, at Sabana Llana was commissioned in August 2004. The plant was designed to provide ready reserve capacity in response to a System disturbance and power factor correction when needed. Within two years of commissioning a fire in the batteries of one unit forced it from service. Ongoing litigation has produced few results and the system continues to sit idle.\r\n\r\n","developer":"Passco, Induchem","electronics\_provider":"General Electric","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1445,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":18.3978052,"longitude":-66.0104825,"master\_project\_id":"1444","name":"PREPA BESS 2","om\_contractor":"","organization":null,"owner\_1":"Puerto Rico Electric Power Authority (PREPA)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.energy.ca.gov/research/notices/2005-02-24\_workshop/06%20Farber-deAnda022405.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":20000,"size\_kwh":0.666666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":40.0,"state":"Puerto Rico","status":"Offline/Under Repair","street\_address":"Sabana Llana","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-29T01:49:33Z","updated\_at\_by\_admin":"2016-06-29T01:49:33Z","updated\_by":null,"updated\_by\_email":null,"utility":"Puerto Rico Electric Power Authority (PREPA)","utility\_type":"State/Municipal Owned","vendor\_company":"Nife Baterias Industriais Ltda.","zip":""}},{"project":{"announcement\_on":"2022-07-10","approval\_status":1,"city":"Feldheim","commissioning\_on":"2022-09-07","companion":"Wind","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@energiequelle.de; phospodka@euroenergy.cz","contact\_info\_visible":false,"contact\_name":"Energiequelle; Pavel Hopodka (Euroenergy s.r.o)","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":14300000.0,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-07-28T20:54:02Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This innovative storage facility for renewable energy is being built in the energy self-sufficient village of Feldheim and functions as a ‘regulating power station’ at regional level. The project is being financed by a venture capital company in which interests are held by Energiequelle, Enercon and a number of other partners. Grant support is also provided by the State of Brandenburg and the European Union.","developer":"Energiequelle","electronics\_provider":"Enercon","energy\_management\_software\_provider":"","funding\_amount\_1":4500000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Brandenburg and the European Regional Development Fund (ERDF)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1446,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1446/1446\_-\_RRKW-Feldheim.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1446/thumb\_1446\_-\_RRKW-Feldheim.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1446/partner\_1446\_-\_RRKW-Feldheim.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":52.011579,"longitude":12.819405,"master\_project\_id":null,"name":"Feldheim Regional Regulating Power Station (RRKW)","om\_contractor":"","organization":"","owner\_1":"Venture Capital","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://cleantechnica.com/2015/09/21/new-10-mw-storage-plant-opened-feldheim-germany-europes-largest/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Transmission upgrades due to wind","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Brandenburg","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-27T23:28:47Z","updated\_at\_by\_admin":"2016-06-22T00:15:01Z","updated\_by":null,"updated\_by\_email":null,"utility":"50 Hertz (Transmission System Operator)","utility\_type":"","vendor\_company":"LG Chem Ltd.","zip":""}},{"project":{"announcement\_on":"2022-07-25","approval\_status":2,"city":"Greater Toronto Area","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"rharvey@hydrogenics.com","contact\_info\_visible":false,"contact\_name":"Rob Harvey","contact\_phone":"+1 905 361 4587","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2014-07-29T16:44:06Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Hydrogenics announced that it has been selected as a Preferred Respondent by the Independent Electricity System Operator (IESO) for Ontario in its procurement for Grid Energy Storage. This Power-to-Gas project will deliver 2MW of storage capacity and be located in the Greater Toronto Area. Hydrogenics will supply the facility's next-generation PEM electrolyzers and is partnering with Enbridge Inc. to develop, build and operate the energy storage facility to provide regulation services to the IESO under contract.","developer":"Enbridge Inc., Hydrogenics","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1447,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":43.5680894,"longitude":-79.7647964,"master\_project\_id":null,"name":"Hydrogenics Power-to-Gas","om\_contractor":"Hydrogenics","organization":null,"owner\_1":"Confidential","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.hydrogenics.com/about-the-company/news-updates/2014/07/25/hydrogenics-selected-for-2-megawatt-energy-storage-facility-in-ontario","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":2000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Ontario","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Hydrogen Storage","technology\_type\_l1":"Hydrogen Storage","technology\_type\_l2":"Hydrogen Storage","technology\_type\_l3":"Hydrogen Storage","updated\_at":"2014-08-08T17:11:31Z","updated\_at\_by\_admin":"2014-08-08T17:11:31Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Hydrogenics","zip":""}},{"project":{"announcement\_on":"2022-08-05","approval\_status":1,"city":"Strathroy","commissioning\_on":"2022-08-05","companion":"","construction\_on":"2022-07-31","contact\_city":"","contact\_country":"","contact\_email":"John.Fernandes@res-americas.com","contact\_info\_visible":false,"contact\_name":"John Fernandes","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"RES Canada Construction (Ontario) LP","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2014-07-29T17:40:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Amphora project is comprised of a +/-4 MW (8 MW total range) / 2.6 MWh lithium battery that provides frequency regulation to the Independent Electricity System Operator (IESO) system; IESO is the grid operator for the province of Ontario. The project utilizes lithium iron phosphate batteries. There are two containers that house batteries weighing approximately 20 tons each, as well as a third container that converts the direct current (DC) output to alternating current (AC) for the injection and withdrawal of real power to and from the grid. The project was awarded to RES by IESO following a competitive tender.","developer":"Renewable Energy Systems Canada Inc.","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1448,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1448/RES\_Amphora.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1448/thumb\_RES\_Amphora.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1448/partner\_RES\_Amphora.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":42.955129,"longitude":-81.613508,"master\_project\_id":null,"name":"RES Amphora","om\_contractor":"Asset Manager RES","organization":"RES Americas","owner\_1":"RES Canada Energy Storage Canada L.P., a subsidiary of Renewable Energy Systems Canada Inc. (RES Canada) ","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.res-group.com/en/portfolio/?ProjectID=2061","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":4000,"size\_kwh":0.65,"size\_kwh\_hours":0,"size\_kwh\_minutes":39.0,"state":"Ontario","status":"Operational","street\_address":"Queen Street","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T06:27:53Z","updated\_at\_by\_admin":"2014-09-11T19:24:18Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Entegrus","utility\_type":"State/Municipal Owned","vendor\_company":"BYD America","zip":""}},{"project":{"announcement\_on":"2022-11-10","approval\_status":0,"city":"Ontario","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Suzanne.wilson@canadiansolar.com","contact\_info\_visible":true,"contact\_name":"Suzanne Wilson","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2014-07-29T18:04:56Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Canadian Solar Solutions Inc. will provide 4 MW/2.76 MWh of stationary on-grid bulk energy storage to Independent Electricity System Operator (IESO) to support the Ontario grid.\r\n\r\nThe 4 MW project will provide an energy storage solution for ancillary services applications in Ontario. The project was one of twelve selected by IESO in a competitive application process that was completed in July 2014. Canadian Solar will be providing reactive power, voltage support and bulk energy storage services to the IESO using stationary lithium battery technology. Canadian Solar will provide operations and maintenance to IESO for a period of 36 months.","developer":"Canadian Solar Solutions Inc.","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1449,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":51.253775,"longitude":-85.3232139,"master\_project\_id":null,"name":"Canadian Solar Solutions for IESO","om\_contractor":"Canadian Solar Solutions Inc.","organization":null,"owner\_1":"Canadian Solar Solutions Inc.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://investors.canadiansolar.com/phoenix.zhtml?c=196781&p=irol-newsArticle&ID=1987675","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":4000,"size\_kwh":0.69,"size\_kwh\_hours":0,"size\_kwh\_minutes":41.4,"state":"Ontario","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-11-10T15:03:27Z","updated\_at\_by\_admin":"2014-11-10T15:03:12Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-02-04","approval\_status":1,"city":"Braderup","commissioning\_on":"2022-07-11","companion":"18 MW Wind","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"thilo.resenhoeft@bosch.com","contact\_info\_visible":false,"contact\_name":"Thilo Resenhoeft","contact\_phone":"+49 711 811-7088","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-07-29T19:49:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"From now on, one of Europe’s largest hybrid batteries will store the electricity generated at a community wind farm in the northern German municipality of Braderup and feed it back into the power grid as needed. Bosch and the community wind farm run by BWP Braderup-Tinningstedt GmbH & Co. KG together brought the stationary energy storage facility on stream on July 11, 2014.\r\n\r\nBosch designed, built and operates the hybrid system, which has a total capacity of 3 megawatt hours (MWh). Comprising a 2 MWh lithium-ion storage unit and a 1 MWh vanadium redox flow battery, the energy storage plant operates with electronic controls and software specially developed by Bosch.","developer":"Energiespeicher Nord GmbH &amp; Co KG","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1453,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1453/1-UBE-20365.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1453/thumb\_1-UBE-20365.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1453/partner\_1-UBE-20365.jpg"}},"integrator\_company":"Bosch","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":54.83235,"longitude":8.897,"master\_project\_id":null,"name":"Bosch Braderup ES Facility: Li-Ion Battery","om\_contractor":"Bosch","organization":"","owner\_1":"Energiespeicher Nord GmbH &amp; Co KG (Joint venture of Bosch &amp; Braderup-Tinningstedt)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.bosch-presse.de/pressportal/de/en/braderup-energy-storage-facility-comes-on-stream-42673.html","primary\_reference1":"","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Transmission Congestion Relief","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":2000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Schleswig-Holstein","status":"Operational","street\_address":"Lundsackerweg 12","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T07:22:51Z","updated\_at\_by\_admin":"2014-11-17T16:12:25Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Schleswig-Holstein Netz AG","utility\_type":"Investor Owned","vendor\_company":"Sony","zip":"25923"}},{"project":{"announcement\_on":"2022-02-04","approval\_status":1,"city":"Braderup","commissioning\_on":"2022-09-15","companion":"19.8 MW Wind","construction\_on":null,"contact\_city":"Stuttgart","contact\_country":"Germany","contact\_email":"thilo.resehoeft@bosch.com","contact\_info\_visible":true,"contact\_name":"Thilo Resenhoeft","contact\_phone":"+49 711 811-7088","contact\_state":"Baden-Württemberg","contact\_street\_address":"Ingersheimer Str. 16","contact\_zip":"70499","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-07-29T19:49:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"From now on, one of Europe’s largest hybrid batteries will store the electricity generated at a community wind farm in the northern German municipality of Braderup and feed it back into the power grid as needed. Bosch and the community wind farm run by BWP Braderup-Tinningstedt GmbH & Co. KG together brought the stationary energy storage facility on stream on July 11, 2014.\r\n\r\nBosch designed, built and operates the hybrid system, which has a total capacity of 3 megawatt hours (MWh). Comprising a 2 MWh lithium-ion storage unit and a 1 MWh vanadium redox flow battery, the energy storage plant operates with electronic controls and software specially developed by Bosch. ","developer":"Energiespeicher Nord GmbH & Co KG","electronics\_provider":"UniEnergy Technologies, AEG Power Solutions","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1454,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1454/1-UBE-20208-e\_\_1\_.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1454/thumb\_1-UBE-20208-e\_\_1\_.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1454/partner\_1-UBE-20208-e\_\_1\_.jpg"}},"integrator\_company":"Bosch","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":54.83235,"longitude":8.897,"master\_project\_id":null,"name":"Bosch Braderup ES Facility: Flow Battery - Energiespeicher Nord GmbH & Co KG","om\_contractor":"UniEnergy Technologies","organization":"Bosch","owner\_1":"Energiespeicher Nord GmbH & Co KG (Joint venture of Bosch &amp; Braderup-Tinningstedt)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.bosch-presse.de/pressportal/de/en/braderup-energy-storage-facility-comes-on-stream-42673.html","primary\_reference1":"","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Transmission Congestion Relief","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":325,"size\_kwh":3.08333333333333,"size\_kwh\_hours":3,"size\_kwh\_minutes":5.0,"state":"Schleswig-Holstein","status":"Operational","street\_address":"Lundsackerweg 12","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-06T07:12:31Z","updated\_at\_by\_admin":"2014-11-17T16:11:15Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Schleswig-Holstein Netz AG","utility\_type":"Investor Owned","vendor\_company":"UniEnergy Technologies, Vanadis Power, Rongke Power","zip":"25923"}},{"project":{"announcement\_on":"2022-04-16","approval\_status":1,"city":"Forli-Cesena","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-07-29T21:33:57Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"As part of the Grid4EU project, Enel is building an advanced control system capable of integrating distributed generation in the medium voltage network. \r\n\r\nThe EESS portion of the system has been installed close to the MV/LV substation called “Smistamento” and it has the following features:\r\n• Apparent power: 1 MVA;\r\n• Energy capacity: 1 MWh;\r\n• System efficiency: 86%;\r\n• Number of cycles: 2000.\r\n\r\nIt is composed of 5 independent battery subsystems (nominal capability 213 kWh), themselves composed of a sub-set of Li-Ion batteries managed by a Battery Management System (BMS) and a power conversion system (DC-AC). In case one subsystem breaks down, the other ones will continue to work. In parallel the EESS reduces the nominal capability and signalises the degraded operation. \r\n\r\nLearn more about Grid4EU: http://www.grid4eu.eu/","developer":"","electronics\_provider":"Loccioni Group","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1455,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1455/grid4eu.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1455/thumb\_grid4eu.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1455/partner\_grid4eu.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":44.1396438,"longitude":12.2464292,"master\_project\_id":null,"name":"GRID4EU Demo 4: Enel RCube","om\_contractor":"","organization":"N/A","owner\_1":"Enel","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://grid4eu.blob.core.windows.net/media-prod/29375/grid4eu-final-report\_normal-res.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"The demonstration, addressing Medium Voltage (MV) network, aims at realizing an advanced control system communicating with all the network relevant nodes (MV generators, HV/MV and MV/LV substations, and a storage facility), through an “always on”, IP standard-based communication solution.","research\_institution":"Grid4EU","research\_institution\_link":"http://www.grid4eu.eu/project-demonstrators/demonstrators/demo-4.aspx","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Emilia Romagna","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-10T03:04:23Z","updated\_at\_by\_admin":"2014-07-29T21:35:07Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Enel","utility\_type":"Investor Owned","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Gangneung","commissioning\_on":"2022-08-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Korea, South","contact\_email":"kyungsoo@sk.com","contact\_info\_visible":false,"contact\_name":"Kyungsoo Yu","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2014-07-30T23:09:44Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Gangneung Green City Experience Center building is part of the ambitious Gangneung Low Carbon Green Demonstration City Project. \r\n\r\nThe building integrates 380 PV panels, low emissivity triple-layered windows, and a 100 kWh energy storage system. The PV system generates 492 kWh/day and approximately 180,000 kWh/year which is stored in the ESS by day and released at night.\r\nThe system is managed by EMS which has AMR (Automated Meter Reading). AMR allows customers to monitor their energy usage and choose to distribute it properly. This works in remote control as well.\r\n\r\nKokam supplied the ESS and SK C&C integrated the system.","developer":"Gangneung-si","electronics\_provider":"Kokam","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1458,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1458/Gr.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1458/thumb\_Gr.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1458/partner\_Gr.png"}},"integrator\_company":"SK C&C","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.7837382,"longitude":128.880584,"master\_project\_id":null,"name":"Gangneung Low Carbon Green City: Experience Center - Gangneung-si","om\_contractor":"","organization":"SK C&C","owner\_1":"Gangneung-si","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.weitz-center.org/uploads/1/7/0/8/1708801/urban\_development\_model\_kwi\_gon\_kim.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Gangwon-do","status":"Operational","street\_address":"Gyeongpo","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-25T06:56:27Z","updated\_at\_by\_admin":"2014-08-28T18:01:56Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"Public Owned","vendor\_company":"Kokam","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"GwaCheon","commissioning\_on":"2022-01-02","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Korea, South","contact\_email":"jumoon@wjis.co.kr","contact\_info\_visible":true,"contact\_name":"Juwoong Moon","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2014-07-30T23:09:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This energy storage system installed at the Seoul Grand Park allows the customer to reduce its electrical bill by reducing the electricity consumption during the peak times. \r\n\r\nSystem composition: Transformer, Chopper, PCS 300 kW, and Battery 300 kWh.\r\n\r\nSystem usages: Stores electricity every night and release it during daytime peaks. Predictable peak hours due to its schedule (Theme park and Zoo). Provides one full discharge per day. Expected cost reduction is $30,000 per year. Expected 10% reduction of the peak electricity.","developer":"Seoul Metropolis","electronics\_provider":"Woojin Industrial Systems Co., Ltd.","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1459,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1459/sgp.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1459/thumb\_sgp.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1459/partner\_sgp.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.429246,"longitude":126.9874451,"master\_project\_id":null,"name":"300 kW Seoul Grand Park ESS","om\_contractor":"","organization":"Woojin Industrial Systems Co., Ltd.","owner\_1":"Seoul Grand Park","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://opengov.seoul.go.kr/section/434395","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":300,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Gyeonggi","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-07T07:42:00Z","updated\_at\_by\_admin":"2015-09-01T22:42:30Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"Public Owned","vendor\_company":"Kokam","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Eumseong","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"Suwon","contact\_country":"","contact\_email":"kaykim@kokam.com","contact\_info\_visible":false,"contact\_name":"Kay Kim","contact\_phone":"+827040606769","contact\_state":"Gyeonggi","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2014-07-30T23:09:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This system is for an industrial customer who need to manage not just their electrical bill but also participate in the demand response market. Designed at 1 MW / 1 MWh ESS, the system also assisted an unstable grid by integrating with renewable energy such as PV, thus improving the quality of the electricity supply by adding another source of power. Composed of Lithium Battery for storage, BMS, PCS, and EMS.\r\nThe purposes of this project are:\r\n 1. Develop global standard's for ESS parts such as BMS, PCS.\r\n 2. Draw out customer-specified-business-model &amp; fundamental system design.\r\n 3. Assure EMS technology that can be monitored at any site at anytime by integrated management system.\r\n 4. Standardize the total system and the parts.","developer":"Korea Institute of Energy Technology Evaluation and Planning","electronics\_provider":"Kokam","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1460,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1460/kit.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1460/thumb\_kit.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1460/partner\_kit.png"}},"integrator\_company":"Hyundai Heavy Industries","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.9396792,"longitude":127.6905018,"master\_project\_id":null,"name":"Eumseong ESS Project - Korea Institute of Energy Technology Evaluation and Planning","om\_contractor":"","organization":"Kokam","owner\_1":"Korea Institute of Energy Technology Evaluation and Planning","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.etnews.com/news/device/energy/2787599\_1480.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Chungbuk","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:34:28Z","updated\_at\_by\_admin":"2014-07-31T16:59:26Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"Public Owned","vendor\_company":"Kokam","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Changwon","commissioning\_on":"2022-02-22","companion":"","construction\_on":null,"contact\_city":"Changwon","contact\_country":"Korea, South","contact\_email":"blksheep@keri.re.kr","contact\_info\_visible":false,"contact\_name":"Seulki Kim","contact\_phone":"","contact\_state":"Gyeongsangnam-do","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2014-07-30T23:09:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This is a part of a project of \"Research on Demand Response with Public Institution Demonstration Program.\" \r\n\r\nThe system is composed of 250 kW / 430 kWh ESS with EMS.\r\n \r\nIn order to reduce the national peak demand of electricity, the main concept of peak shaving has to be smarter. This project focuses on the customers and demand management under government's control interactively.\r\n\r\n The system allows the customers to shave their peak and additionally to move their peak, thus managing their demand by using an EMS. The EMS interacts with the national server and reports the real-time-status of institutes' energy via ethernet. ICT technology has combined with the EMS and anticipates customer's peak usages and does the electrical bill management by reducing and moving its peak. Once this algorithm and the system has set to be standard in a year and is accepted by government, the system will be adapted nationwide for public institutions and other customers.","developer":"SmartGrid.or.kr","electronics\_provider":"Woojin Industrial Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1461,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1461/ket.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1461/thumb\_ket.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1461/partner\_ket.png"}},"integrator\_company":"Kokam","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.223105,"longitude":128.674574,"master\_project\_id":null,"name":"Korea Electrotechnology Research Institute 250 kW - SmartGrid.or.kr","om\_contractor":"","organization":"Korea Electrotechnology Research Institute","owner\_1":"Korea Electrotechnology Research Institute","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.electimes.com/home/news/main/viewmain.jsp?news\_uid=107930","primary\_reference1":"http://kokam.com/250kw430kwh/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":1.71666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":43.0,"state":"Gyeongnam","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-29T03:24:09Z","updated\_at\_by\_admin":"2014-09-05T13:39:00Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"Public Owned","vendor\_company":"Kokam","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Ilsan","commissioning\_on":"2022-01-02","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Korea, South","contact\_email":"blksheep@keri.re.kr","contact\_info\_visible":false,"contact\_name":"Seulki Kim","contact\_phone":"","contact\_state":"Changwon","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2014-07-30T23:09:47Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Korea's high speed railroad. Kokam deployed 1 MW / 520 kWh ESS in a subway station. Regenerative energy storage and voltage support during subway's stop and start; and energy bill management by peak shaving and load shifting. The system is interactive with National Energy Management Server and integrates with the load management of the subway station.","developer":"SmartGrid.or.kr","electronics\_provider":"Kokam","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1462,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1462/ktx.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1462/thumb\_ktx.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1462/partner\_ktx.png"}},"integrator\_company":"Woojin Industrial Systems","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.6824891,"longitude":126.7690145,"master\_project\_id":null,"name":"KTX (Train station #1 and #2) - SmartGrid.or.kr","om\_contractor":"","organization":"","owner\_1":"Korea Train Express","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.electimes.com/m/view.jsp?news\_uid=109658","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Transportation Services","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.516666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":31.0,"state":"Gyeonggi","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:13:43Z","updated\_at\_by\_admin":"2014-09-05T13:40:23Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"Public Owned","vendor\_company":"Kokam","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Daegu","commissioning\_on":"2022-01-02","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Korea, South","contact\_email":"yjyang@hyundai-autoever.com","contact\_info\_visible":true,"contact\_name":"Yunju Yang","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2014-07-30T23:10:28Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This system is deployed in a cogeneration power plant which works for a local Korean electricity supplier. Funded by government and the plant, the purpose of this project is to look at a local power plant's energy usage and efficiency improvements by the use of energy storage to reduce fossil fuel during generation. \r\n\r\nIn addition, 500 advanced meters were deployed in individual household or small businesses all over the city. All this is managed by a single energy management system (EMS) which is connected to the government server. This will generate the data of energy usage of single points. And the data will be used for establishing the most suitable algorithm which allows the EMS to perform the best energy management solutions for the city. ","developer":"SmartGrid.or.kr, Hyundai Autoever","electronics\_provider":"Woojin Industrial Systems Co., Ltd.","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1463,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1463/dae.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1463/thumb\_dae.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1463/partner\_dae.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.866353,"longitude":128.5927789,"master\_project\_id":null,"name":"Daesung Energy Daegu Smart Grid Project (Cogeneration plant) - SmartGrid.or.kr & Hyundai Autoever","om\_contractor":"","organization":"","owner\_1":"Daesung Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.electimes.com/home/news/main/viewmain.jsp?news\_uid=106856","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":1.5,"size\_kwh\_hours":1,"size\_kwh\_minutes":30.0,"state":"Gyeongbuk","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-10T02:22:00Z","updated\_at\_by\_admin":"2015-09-01T22:06:16Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"Public Owned","vendor\_company":"Kokam","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Westminster","commissioning\_on":"2021-12-20","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"jay.rollo@sce.com","contact\_info\_visible":false,"contact\_name":"Jay Rollo","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-31T21:52:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Southern California Edison (SCE) constructed the Large Energy Storage Test Apparatus (LESTA) testing facility to evaluate promising energy storage systems, facilitate deployment, encourage innovation, and develop practical energy storage-based end-uses. In addition to providing a safe and convenient platform for multi-megawatt storage equipment to be tested under a simulated and controlled environment, the LESTA facility also offers the opportunity for the equipment to be directly exposed to a live 12 kV distribution circuit to observe behaviors under grid-connected, real-life conditions. The station is currently conducting a long-term evaluation of a 2 MW, 0.5 MWh containerized energy storage system manufactured by A123 Systems. The A123 Systems unit was commissioned on December 20, 2011. ","developer":"Southern California Edison","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1465,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.7513419,"longitude":-117.9939921,"master\_project\_id":null,"name":"SCE LESTA: 2 MW A123 Test","om\_contractor":"","organization":"","owner\_1":"Southern California Edison","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://inside.edison.com/content/inside/2012/03-12/f-atlabs.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"Edison Advanced Technology Labs","research\_institution\_link":"http://inside.edison.com/content/inside/2012/03-12/f-atlabs.html","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T07:18:31Z","updated\_at\_by\_admin":"2016-05-17T23:11:20Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"A123 Systems","zip":"92683"}},{"project":{"announcement\_on":"2022-07-31","approval\_status":0,"city":"Rosemead","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"kfok@lgchem.com","contact\_info\_visible":false,"contact\_name":"Kevin Fok","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-07-31T22:40:24Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Southern California Edison expects to deliver a number of LG Chem lithium-ion units to customer homes in Q2 2014.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1466,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.0805651,"longitude":-118.072846,"master\_project\_id":null,"name":"SCE Home Battery Pilot","om\_contractor":"Southern California Edison","organization":null,"owner\_1":"Southern California 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States","contact\_email":"info@primuspower.com","contact\_info\_visible":true,"contact\_name":"Andrew Marshall","contact\_phone":"(510) 342-7603","contact\_state":"California","contact\_street\_address":"3697 Trust Way","contact\_zip":"94505","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-08-01T17:01:39Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Primus Power is deploying a 250 kW / 1 MWh Zinc Bromide Redox Flow Battery for a renewable integration project with the Modesto Irrigation District.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":14000000.0,"funding\_amount\_2":1000000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 – RD&amp;D","funding\_source\_2":"State/Provincial/Regional Grant","funding\_source\_3":"","funding\_source\_details\_1":"US Department of Energy, Office of Electricity - American Recovery and Reinvestment Act of 2009 (ARRA)","funding\_source\_details\_2":"California Energy Commission","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1467,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"BANC","latitude":37.6390972,"longitude":-120.9968782,"master\_project\_id":null,"name":"MID Primus Power Renewables Firming Wind Energy Storage Demonstration","om\_contractor":"","organization":"Primus Power","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://energy.gov/sites/prod/files/ESS%202010%20Peer%20Review%20-%20DOE%20Smart%20Grid%20Demonstration%20Program%20-%20Ron%20Staubly%2C%20NETL.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"http://www.sandia.gov/ess/index.html","service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":250,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-29T07:05:46Z","updated\_at\_by\_admin":"2015-12-24T01:44:21Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Modesto Irrigation District","utility\_type":"Public Owned","vendor\_company":"Primus Power","zip":""}},{"project":{"announcement\_on":"2022-08-04","approval\_status":0,"city":"Tokunoshima Island","commissioning\_on":null,"companion":"2 MW Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2014-08-04T15:26:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Samsung SDI will supply its lithium-ion batteries to a Japanese company building a 1 MW solar farm, with the deal expected to then go on to furnish an initial 20 solar farms with batteries.\r\n\r\nEdison Power, based in Tokyo, provides development services for solar power plants as well as energy management systems and distribution of large-scale lithium-ion batteries. According to Korean news agency Yonhap, Samsung SDI, the lithium-ion battery division of Korean trading company Samsung, will initially supply 1 MWh of batteries to a project Edison Power is building in Kagoshima Prefecture, on the southern island of Kyushu. ","developer":"Edison Power","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1468,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":31.5601464,"longitude":130.5579779,"master\_project\_id":null,"name":"Mifuneholdings Kagoshima Solar Plant with 1 MWh Samsung SDI","om\_contractor":"","organization":null,"owner\_1":"Mifuneholdings","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"$971/kWh","primary\_reference":"http://asia.nikkei.com/Business/Companies/Samsung-SDI-to-sell-storage-batteries-for-solar-farms-in-Japan","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":2000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Kagoshima Prefecture","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-09-05T21:12:28Z","updated\_at\_by\_admin":"2014-09-05T21:12:14Z","updated\_by":null,"updated\_by\_email":null,"utility":"Kyushu Electric Power Company","utility\_type":"Investor Owned","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":"2022-01-21","approval\_status":1,"city":"Hillside","commissioning\_on":null,"companion":"575 kw PV","construction\_on":null,"contact\_city":"Lawrenceville","contact\_country":"United States","contact\_email":"info@princetonpower.com","contact\_info\_visible":true,"contact\_name":"Darren Hammell","contact\_phone":"(609) 955-5390","contact\_state":"NJ","contact\_street\_address":"3175 Princeton Pike","contact\_zip":"8648","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-08-06T20:33:10Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Princeton Power Systems was chosen by Bysolar Inc to provide a 500 kW battery inverter system for frequency regulation and emergency backup power. Bysolar is working in conjunction with Princeton Power Systems and Axion to create a battery system alongside a 575 kW solar PV system at an undisclosed facility in northern New Jersey. The battery system provides power in case of a grid outage, and generates revenue with an anticipated return-on-investments of five years.","developer":"","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1476,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Bysolar","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.6955044,"longitude":-74.2287333,"master\_project\_id":null,"name":"Bysolar Hillside ESS for PJM Frequency Regulation","om\_contractor":"Bysolar","organization":"Princeton Power Systems","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.princetonpower.com/pr/Bysolar\_Axion\_PPS\_Proofed.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"New Jersey","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead Carbon Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-27T20:52:35Z","updated\_at\_by\_admin":"2014-08-12T19:33:34Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Axion Power International Inc.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Calama","commissioning\_on":null,"companion":"100 MW Solar Photovoltaic field","construction\_on":"2022-05-20","contact\_city":"","contact\_country":"","contact\_email":"luis.rejano@solar.abengoa.com","contact\_info\_visible":false,"contact\_name":"Luis Rejano","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1000000000.0,"cost\_OPEX":null,"country":"Chile","created\_at":"2014-08-06T20:35:42Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Cerro Dominador Project will consist of a photovoltaic plant with a capacity of 100 MW and the first concentrated solar plant in Latin America, with 110 MW of capacity and 17.5 hours of thermal storage. Altogether, the Project’s solar field will cover 1,000 hectares. The Project will prevent the emission of approximately 870,000 tons of CO2 per year and will contribute to meet the growing energy demand from households and industries by combining both technologies.\r\n\r\nThe CSP Cerro Dominador is a plant with solar thermal tower technology that uses a series of 10,600 heliostats that track the sun on two axes, concentrating the solar radiation onto a single point on the upper part of the tower. Each heliostat consists of 32 individual mirrors that reach 1507 square feet. At the receiver the heat is transferred to the molten salts. In a heat exchanger, the molten salts transfer their heat to a water stream to generate superheated and reheated steam, which powers a turbine capable of generating around 110 MW of power.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1478,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1478/TORRE-SEPT2-870x652.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1478/thumb\_TORRE-SEPT2-870x652.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1478/partner\_TORRE-SEPT2-870x652.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CDEC-SING","latitude":-22.453712,"longitude":-68.925307,"master\_project\_id":null,"name":"Planta Solar Cerro Dominador","om\_contractor":"Abengoa Solar","organization":"","owner\_1":"Abengoa Solar Chile","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://cerrodominador.com/proyecto/solar-thermal-plant/?lang=en","primary\_reference1":"http://www.nrel.gov/csp/solarpaces/project\_detail.cfm/projectID=3275","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":110000,"size\_kwh":17.5,"size\_kwh\_hours":17,"size\_kwh\_minutes":30.0,"state":"II Región de Antofagasta","status":"Under Construction","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-25T01:54:36Z","updated\_at\_by\_admin":"2015-02-25T19:02:44Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Abengoa Solar","zip":""}},{"project":{"announcement\_on":"2022-08-06","approval\_status":0,"city":"Livorno","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-06T23:08:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"At Enel’s research facility in Livorno, three different energy storage systems are being tested: lithium ion batteries, vanadium redox flow batteries and sodium-nickel chloride \"ZEBRA\" (Zero Emission Battery Research Activity) batteries.\r\n\r\nThe key performance factors being investigated are:\r\n\r\n- Response and inversion time \r\n- Round trip efficiency \r\n- Real vs nominal capacity \r\n- Performances decay","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1479,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":43.548473,"longitude":10.3105674,"master\_project\_id":"929:1029","name":"Enel Livorno Test Facility: 20 kW ZEBRA","om\_contractor":"","organization":null,"owner\_1":"Enel","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.enel.com/en-GB/media/news/enel-leader-in-electricity-storage/p/090027d981d15e62","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"Enel","research\_institution\_link":"http://www.enel.com/en-GB/innovation/research\_development/","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":20,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Livorno","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-11-07T21:01:36Z","updated\_at\_by\_admin":"2014-11-07T21:01:36Z","updated\_by":null,"updated\_by\_email":null,"utility":"Enel","utility\_type":"Investor Owned","vendor\_company":"FIAMM Energy Storage Solutions","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Lem Kær","commissioning\_on":"2022-11-01","companion":"12 MW Lem Kær Wind Plant","construction\_on":null,"contact\_city":"","contact\_country":"Denmark","contact\_email":"rlark@vestas.com","contact\_info\_visible":false,"contact\_name":"Rasmus Lærke, German Tarnowski, Philip Kjær, Florin Iov","contact\_phone":"gctar@vestas.com, pck@vestas.com, fliov@vestas.com","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Denmark","created\_at":"2014-08-09T00:35:02Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In order to better quantify the value proposition of wind power combined with energy storage, Vestas connected two lithium ion systems to its 12 MW Lem Kær Wind Plant in western Denmark. The demo features a 1.2 MW/ 300 kWh and a 400 kW/ 100 kWh system from different companies. The system has been approved by the Danish Transmission System Operator for primary reserve market participation.","developer":"Vestas Wind Systems","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1480,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1480/vestas.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1480/thumb\_vestas.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1480/partner\_vestas.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":56.0251898,"longitude":8.3831812,"master\_project\_id":null,"name":"Lem Kær 1.2 MW ESS Demo - Vestas Wind Systems","om\_contractor":"","organization":"Vestas Wind Systems","owner\_1":"Vestas","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"http://proceedings.ewea.org/annual2013/allfiles2/534\_EWEA2013presentationfinal.pdf","primary\_reference":"http://www.marketwired.com/press-release/altairnano-lithium-titanate-energy-storage-system-commissioned-at-vestas-wind-farm-nasdaq-alti-1770750.htm","primary\_reference1":"https://www.engerati.com/article/vestas-and-tesla-work-wind-energy-storage-solutions","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1200,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Ringkøbing","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:45:25Z","updated\_at\_by\_admin":"2016-05-17T00:43:23Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Altair Nanotechnologies Inc.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Lem Kær","commissioning\_on":"2022-02-02","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Denmark","contact\_email":"rlark@vestas.com","contact\_info\_visible":false,"contact\_name":"Rasmus Lærke, German Tarnowski, Philip Kjær, Florin Iov","contact\_phone":"gctar@vestas.com, pck@vestas.com, fliov@vestas.com","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Denmark","created\_at":"2014-08-09T00:35:03Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In order to better quantify the value proposition of wind power combined with energy storage, Vestas connected two lithium ion systems to its 12 MW Lem Kær Wind Plant in western Denmark. The demo features a 1.2 MW/ 300 kWh and a 400 kW/ 100 kWh system from different companies. The system has been approved by the Danish Transmission System Operator for primary reserve market participation. ","developer":"Vestas Wind Systems","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1481,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1481/vestas.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1481/thumb\_vestas.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1481/partner\_vestas.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":56.0251898,"longitude":8.3831812,"master\_project\_id":null,"name":"Vestas Lem Kær ESS Demo 400 kW","om\_contractor":"","organization":"Vestas Wind Systems","owner\_1":"Vestas","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"http://proceedings.ewea.org/annual2013/allfiles2/534\_EWEA2013presentationfinal.pdf","primary\_reference":"http://www.natlab.dtu.dk/~/media/Andre\_Universitetsenheder/Nationallab\_for\_Baeredygtig\_Energi/NatLabDocs/Rasmus\_Laerke\_Vestas.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"Vestas Wind Systems","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":400,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Ringkøbing","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-05T02:04:58Z","updated\_at\_by\_admin":"2014-10-23T22:45:37Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-01-27","approval\_status":1,"city":"Hawaii (Island)","commissioning\_on":"2022-06-01","companion":"10.6 MW Wind","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"lcutshaw@hawaii.edu","contact\_info\_visible":false,"contact\_name":"Larry Cutshaw","contact\_phone":"808-956-7787","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-08-09T00:35:03Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Altair Nanotechnologies Inc. was awarded a contract with the Hawai'i Natural Energy Institute (HNEI) of the University of Hawai'i at Manoa to supply a 1-MW ALTI-ESS energy storage system for a test of wind energy integration.\r\n\r\nThe research project, funded through a grant from the Office of Naval Research, is designed to test the performance characteristics of the battery system and to demonstrate the effectiveness of battery storage technology to enable integration of solar energy into an electric grid. The test is expected to demonstrate solutions for integration of greater levels of renewable energy onto the grid, improving capacity utilization, and reducing dependency on fossil-fuel power generation while maintaining grid performance and reliability.","developer":"Hawaii Renewable Partners","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Office of Naval Research","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1482,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":19.5429151,"longitude":-155.6658568,"master\_project\_id":null,"name":"Hawi Wind Farm BESS - Hawaii Renewable Partners","om\_contractor":"","organization":"University of Hawaii","owner\_1":"Hawaii Renewable Partners","owner\_2":"Hawaii Natural Energy Institute","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.hnei.hawaii.edu/sites/www.hnei.hawaii.edu/files/Batteries\_for\_Grid\_Management.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"The Hawaii Natural Energy Institute is an organized research unit of the School of Ocean and Earth Science and Technology (SOEST) of the University of Hawai‘i at Mānoa (UHM). The Institute performs research, conducts testing and evaluation, and manages public-private partnerships across a broad range of renewable and enabling technologies to reduce the State of Hawai‘i's dependence on fossil fuel.","research\_institution":"Hawaii Natural Energy Institute","research\_institution\_link":"http://www.hnei.hawaii.edu/","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Hawaii","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:15:12Z","updated\_at\_by\_admin":"2015-03-16T19:04:32Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Hawaii Electric Light Company","utility\_type":"","vendor\_company":"Altair Nanotechnologies Inc.","zip":""}},{"project":{"announcement\_on":"2022-06-02","approval\_status":1,"city":"N/A","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"tluo@altairnano.com","contact\_info\_visible":false,"contact\_name":"Tony Lou","contact\_phone":"775-858-3726","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-08-09T00:41:02Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In January 2013, Altair commissioned a 1.8 MW/ 300 kWh ALTI ESS System to Energy Storage Holdings in New Jersey. This system has entered into commercial operation, and is generating revenue through the sale of ancillary grid services.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1483,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.0583238,"longitude":-74.4056612,"master\_project\_id":null,"name":"Energy Storage Holdings Altair ALTI-ESS","om\_contractor":"","organization":"Altair Nanotechnologies Inc.","owner\_1":"Altair Nanotechnologies Inc.","owner\_2":"Energy Storage Holdings (3 Year Lease)","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.marketwired.com/press-release/altairnano-lease-new-alti-ess-advantage-18-mega-watt-system-us-frequency-regulation-nasdaq-alti-1521815.htm","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency 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Inc.","zip":""}},{"project":{"announcement\_on":"2022-10-03","approval\_status":1,"city":"Loiza","commissioning\_on":"2022-12-01","companion":"26 MW PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"tluo@altairnano.com","contact\_info\_visible":false,"contact\_name":"Tony Lou","contact\_phone":"775-858-3726","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-08-09T00:41:44Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Project does not appear to have been built.\r\n\r\nAltair Nanotechnologies Inc. was selected by Uriel Renewables Inc. and Coqui Power LLC to provide an advanced battery energy storage system for a renewable integration project at the San Fermin 26 MW photovoltaic solar farm in Loiza, Puerto Rico.\r\n\r\nAltairnano will provide a 2 megawatt (MW) ALTI-ESS Advantage advanced energy storage system to provide frequency regulation and ramp-rate control. The system will satisfy the technical requirements established by the Puerto Rico Electric Power Authority (PREPA). Altairnano will deliver, install and commission the system before Dec. 31, 2012.","developer":"Uriel Renewables Inc., Coqui Power LLC","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1484,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":18.4308037,"longitude":-65.8804433,"master\_project\_id":null,"name":"San Fermin Solar BESS","om\_contractor":"","organization":"","owner\_1":"Uriel Renewables Inc.","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.elp.com/articles/2012/10/altairnano-selected-for-26-mw-san-fermin-solar-project-in-puerto-rico.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":15.0,"size\_kwh\_hours":15,"size\_kwh\_minutes":0.0,"state":"Puerto Rico","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T07:16:34Z","updated\_at\_by\_admin":null,"updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Puerto Rico ","utility\_type":"","vendor\_company":"Altair Nanotechnologies Inc.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Amundsen–Scott South Pole Station","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"gene@trevicomm.com","contact\_info\_visible":false,"contact\_name":"Gene Hunt","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Antarctica","created\_at":"2014-08-12T16:53:58Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In collaboration with several centers of higher education, the University of Chicago chose Xtreme Power’s energy storage system to power the 200-ton South Pole Telescope’s scan cycles without infringing on the station’s life support system. The Telescope requires up to 259,200 cycles per month.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1485,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1485/southpole.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1485/thumb\_southpole.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1485/partner\_southpole.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-77.5247401,"longitude":166.9603134,"master\_project\_id":null,"name":"South Pole Telescope BESS","om\_contractor":"","organization":"","owner\_1":"University of Chicago","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.agrion.org/upload/fichier/san\_francisco/Xtreme%20Power%20-%20AGRION%20Distributed%20Energy%20Economy%2010\_16\_12.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":0.0833333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":5.0,"state":"South Pole","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-27T20:36:52Z","updated\_at\_by\_admin":"2015-08-05T21:01:14Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Younicos (formerly Xtreme Power) ","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Marseilles","commissioning\_on":"2022-05-14","companion":" 210 MW Wind Farm, 20 MW Solar Project","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"gene@trevicomm.com","contact\_info\_visible":false,"contact\_name":"Gene Hunt","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-08-12T18:17:33Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"On May 14, 2015, Invenergy LLC (“Invenergy”) announced the start of commercial operations of its 31.5 MW Grand Ridge Energy Storage project in La Salle County, Illinois.\r\n\r\nThe project is located about 80 miles southwest of Chicago at Invenergy’s Grand Ridge Energy Center, which is comprised of a 210 MW wind farm; a 20 MW solar project; and an existing 1.5 MW energy storage unit.\r\n\r\nGrand Ridge Energy Storage provides fast-response regulation service to the PJM market. ","developer":"","electronics\_provider":"Younicos","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1486,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":41.3308666,"longitude":-88.7081293,"master\_project\_id":null,"name":"Invenergy Grand Ridge Wind Project BESS","om\_contractor":"","organization":"","owner\_1":"Invenergy LLC","owner\_2":"Younicos","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://energystorage.org/news/esa-news/invenergy-announces-start-commercial-operation-315-mw-grand-ridge-energy-storage","primary\_reference1":"https://invenergyllc.com/projects/overview","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":31500,"size\_kwh":0.383333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":23.0,"state":"Illinois","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T06:01:36Z","updated\_at\_by\_admin":"2015-08-05T18:49:16Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Younicos","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Arlanda","commissioning\_on":"2022-07-01","companion":"","construction\_on":"2022-09-01","contact\_city":"Malmö","contact\_country":"Sweden","contact\_email":"olof.andersson@sweco.se","contact\_info\_visible":false,"contact\_name":"O. Andersson","contact\_phone":"+46 40 167214 ","contact\_state":"Sweden","contact\_street\_address":"Box 286","contact\_zip":"201 22","contractor\_1":"Sweco","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Sweden","created\_at":"2014-08-18T16:27:12Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The world’s largest thermal energy storage installation is in an underground aquifer at the Arlanda Airport in Sweden.\r\n\r\nSweco was responsible for project development, engineering design and rconstruction of the Aquifer Thermal Energy Storage (ATES) and all connecting systems.\r\n\r\nThe ATES system consists of two groups of wells, forming a ”warm” group in the southern part of the aquifer, and a “cold” group in the northern part. The wells are connected to a pipe system ending at the distribution center where heat and cold from the ATES system is transferred over to a distribution pipe through a large plate heat exchanger. \r\n\r\nThe system consists of 11 wells, 5 cold and 6 warm. The water flow rate is 720 m3/h and the thermal capacity is roughly 10 MW. Calculated energy savings is 4 GWh/year electricity and 10 GWh/year district heating.","developer":"LFV (the Swedish Civil Aviation Administration)","electronics\_provider":"Alfa Lava","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1487,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1487/LFV-VinterSommar.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1487/thumb\_LFV-VinterSommar.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1487/partner\_LFV-VinterSommar.jpg"}},"integrator\_company":"Sweco","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":59.6493133,"longitude":17.9340322,"master\_project\_id":null,"name":"Arlanda Airport 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AB","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":2,"city":"Utsira","commissioning\_on":"2022-07-01","companion":"600 kW Wind","construction\_on":"2022-06-01","contact\_city":"","contact\_country":"","contact\_email":"","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Sweco Norway","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Norway","created\_at":"2014-08-18T16:55:05Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-01-01","desc":"In 2004 Statoil ASA and Enercon jointly developed a wind to hydrogen project on Utsira Island, Norway. \r\n\r\nThe 4 year demonstration combined a 600 kW wind turbine with the following:\r\n- 5 kWh flywheel\r\n- 100 kVA master synchronous machine\r\n- 10 Nm3/h electrolyser w/ 48 kW peak load\r\n- 5 kW compressor\r\n- 2,400 Nm3, 200 bar hydrogen storage pressure vessel\r\n\r\nTo generate power from the hydrogen, a 55 kW MAN hydrogen internal combustion engine and a 10 kW IRD Fuel Cell were installed.","developer":"","electronics\_provider":"MAN, IRD","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1488,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1488/utsira.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1488/thumb\_utsira.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1488/partner\_utsira.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":59.308129,"longitude":4.8820629,"master\_project\_id":null,"name":"Utsira Wind Power & Hydrogen Plant","om\_contractor":"Statoil ASA, Enercon","organization":null,"owner\_1":"Statoil ASA","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.iphe.net/docs/Renew\_H2\_Ustira.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"http://www.sciencedirect.com/science/article/pii/S0360319909016759","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Electric Supply 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States","contact\_email":"fdelattre@vyconenergy.com","contact\_info\_visible":false,"contact\_name":"Frank DeLattre","contact\_phone":"562.282.5500","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Mexico","created\_at":"2014-08-18T17:19:30Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"VYCON announced that the The Benito Juárez International Airport (AICM) in Mexico City, has purchased three of VYCON’s award-winning kinetic energy storage flywheel systems. These backup systems will increase power protection to the airport’s vital runway lighting and other critical navigation systems. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1489,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1489/vycon.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1489/thumb\_vycon.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1489/partner\_vycon.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":19.4360762,"longitude":-99.0719083,"master\_project\_id":null,"name":"Mexico City Airport VYCON Flywheels","om\_contractor":"","organization":null,"owner\_1":"Benito Juárez International Airport","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.vyconenergy.com/pages/subpages/pr/pr\_140813.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":390,"size\_kwh":0.00833333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.5,"state":"Mexico City","status":"Contracted","street\_address":"Benito Juárez International Airport","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2014-08-18T17:19:56Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"VYCON","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Santa Clara","commissioning\_on":"2022-07-21","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"linda.morrow@meppi.com","contact\_info\_visible":false,"contact\_name":"Linda Morrow","contact\_phone":"724-779-1664","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-08-18T18:54:53Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"CoreSite Realty Corporation chose Mitsubishi Electric Power Products to provide Uninterruptible Power Supply (UPS) units for their 101,000 square-foot data center in Santa Clara, Calif. CoreSite’s Santa Clara data center was completed on July 21, 2022 and is the sixth CoreSite data center and colocation facility to feature Mitsubishi Electric UPS products.\r\n\r\nCoreSite’s newest facility is the second of four planned data centers at the company’s Santa Clara campus. The first on-campus data center has posted Power Usage Effectiveness (PUE) levels of 1.3 and Mitsubishi Electric’s 9900B units are expected to contribute to an even lower PUE at the new data center, leveraging their 97 percent efficiency rating. Mitsubishi Electric UPS products also contributed to the LEED Gold certification and Silicon Valley Power’s Energy Innovator Award, both received at CoreSite’s 2901 Coronado data center in July of 2011.","developer":"","electronics\_provider":"Mitsubishi Electric Power Products","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1490,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1490/mitsu.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1490/thumb\_mitsu.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1490/partner\_mitsu.jpg"}},"integrator\_company":"Mitsubishi Electric Power Products","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.375202,"longitude":-121.971807,"master\_project\_id":null,"name":"Mitsubishi UPS at CoreSite Santa Clara Data Center","om\_contractor":"","organization":"","owner\_1":"CoreSite Realty Corporation","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.businesswire.com/news/home/20110803006420/en/CoreSite-Chooses-Mitsubishi-Electric-Power-Products%E2%80%99-Uninterruptible#.U\_JKmvldXy0","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1500,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"2901 Coronado","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-01T02:55:36Z","updated\_at\_by\_admin":"2016-05-17T00:45:36Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Silicon Valley Power","utility\_type":"State/Municipal Owned","vendor\_company":"Mitsubishi Electric Power Products","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Currie","commissioning\_on":"2022-01-01","companion":"Wind","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"david.butler@hydro.com.au","contact\_info\_visible":false,"contact\_name":"David Butler; Simon Gamble","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2014-08-19T14:19:28Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The King Island Renewable Energy\r\nExpansion (KIREX) project in 2003 supplemented the existing Huxley Hill Wind Farm by adding additional wind turbines and a vanadium redox flow battery.\r\n\r\n- 68,000 litres of electrolyte contained in four plastic tanks \r\n- Six Sumitomo cell stacks \r\n- Energy storage of 200 kW for four hours \r\n- Peak short-term output of 400 kW \r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1492,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-39.9282417,"longitude":143.8523102,"master\_project\_id":null,"name":"Kind Island Renewable Energy Expansion VRB","om\_contractor":"","organization":null,"owner\_1":"Hydro Tasmania","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.hydro.com.au/system/files/documents/King\_Island\_Renewable\_Energy\_PK\_2008.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Tasmania","status":"Offline/Under Repair","street\_address":"Currie Power Station","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-01-12T23:03:01Z","updated\_at\_by\_admin":"2016-01-12T23:03:01Z","updated\_by":null,"updated\_by\_email":null,"utility":"Hydro Tasmania","utility\_type":"State/Municipal Owned","vendor\_company":"Sumitomo Electric Industries, Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Madrid","commissioning\_on":"2022-01-15","companion":"PV, EV Charger","construction\_on":"2022-09-15","contact\_city":"Mairena del Aljarafe","contact\_country":"Spain","contact\_email":"rgonzalez@wininertia.es","contact\_info\_visible":true,"contact\_name":"Rafael Gonzalez ","contact\_phone":"+34 954 173 085","contact\_state":"Seville","contact\_street\_address":"Calle Innovación 6-8, Edificio Ariete, Poligono PISA\t","contact\_zip":"41927","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":790962.0,"cost\_OPEX":12.5,"country":"Spain","created\_at":"2014-08-19T21:16:29Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Maxwell Technologies, Inc. announced that Win Inertia, an engineering firm specializing in power electronics, energy storage and control and communication systems, is using its ultracapacitors for a stationary wayside braking energy recuperation system at an electric rail system in Cerro Negro, Spain. Win Inertia designed and installed the system under a contract with the Spanish government's Administrator of Railway Infrastructures (ADIF). In this installation, the system also enables ADIF to store excess energy in a battery bank that supplies an electric vehicle (EV) charging station located at the rail station. The facility also seamlessly integrated a photovoltaic (PV) generator to supply additional energy if required.\r\n\r\nThe recuperation system employs Win Inertia's SHAD® hybrid control technology (international patent pending) to integrate batteries and Maxwell ultracapacitors to increase energy recovery efficiency and reduce stress on the batteries, thereby extending battery life. Ultracapacitors' rapid charge/discharge characteristics uniquely enable them to capture and store more energy during each braking event than battery-based systems, which have limited ability to absorb energy in the few seconds required to stop a vehicle. Win Inertia's high-efficiency hybrid energy storage and power delivery system furthers ADIF's return on investment as it enables dual use of the recuperated energy for rail vehicle propulsion and EV charging. By converting kinetic energy into stored electric energy through regenerative braking, the system recovers 8 to 10 percent of the total energy used by the railway system, which is then used to power the EV charging station.","developer":"Win Inertia","electronics\_provider":"Win Inertia","energy\_management\_software\_provider":"","funding\_amount\_1":790962.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"INNPACTO Program (Spain)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1493,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1493/WinInertia.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1493/thumb\_WinInertia.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1493/partner\_WinInertia.JPG"}},"integrator\_company":"Win Inertia","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":40.37563,"longitude":-3.679729,"master\_project\_id":null,"name":"Ferrolinera WESS: Ultracapacitors - Win Inertia","om\_contractor":"","organization":"Win Inertia","owner\_1":"Administrator of Railway Infrastructures (ADIF)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://wininertia.es/projects/ferrolinera/","primary\_reference1":"","projected\_lifetime":"12.0","rdd\_status":"Yes","research\_desc":"Electronic Technology Group\t","research\_institution":"University of Seville (Spain)\t","research\_institution\_link":"http://iecon02.us.es/","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_5":"Transportation Services","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":300,"size\_kwh":0.0105,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.63,"state":"Madrid","status":"Operational","street\_address":"Avenida Santa Catalina (ADIF Cerro Negro facility)","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical Capacitor","technology\_type\_l1":"Electro-chemical Capacitor","technology\_type\_l2":"Electro-chemical Capacitor","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-07T06:07:30Z","updated\_at\_by\_admin":"2016-05-17T00:33:44Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Cerro Negro Energy Laboratory (ADIF)","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Maxwell Technologies","zip":""}},{"project":{"announcement\_on":"2022-03-04","approval\_status":0,"city":"Texas","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"fdelattre@vyconenergy.com","contact\_info\_visible":false,"contact\_name":"Frank DeLattre","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-08-20T20:36:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"VYCON announced that its VDC-XE systems will provide eight megawatts of battery-free power protection to a large lights-out data center located in Texas. \r\n\r\nAt a lights-out data facility, technology is required that is extremely reliable, has zero or low maintenance, is highly efficient and is redundant with scalability to assure the highest level of uptime with minimal human intervention. Needing to accommodate these objectives as well as improve its carbon footprint, the data center will now be protected by multiple 750kVA , highly efficient, double-conversion uninterruptible power system (UPSs) modules paired with a total of eight megawatts of VYCON's VDC-XE scalable kinetic energy storage systems. By going battery-free, the data center will significantly reduce downtime, eliminate frequent battery maintenance / replacement and eliminate the need to add expensive cooling of the environment for batteries.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1494,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1494/vycon.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1494/thumb\_vycon.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1494/partner\_vycon.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":31.9685988,"longitude":-99.9018131,"master\_project\_id":null,"name":"VYCON Lights-Out Data Center","om\_contractor":"","organization":null,"owner\_1":"Confidential","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.vyconenergy.com/pages/subpages/pr/pr\_140304.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":8000,"size\_kwh":0.00833333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.5,"state":"Texas","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2014-08-20T20:37:09Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"VYCON","zip":""}},{"project":{"announcement\_on":"2022-06-01","approval\_status":1,"city":"Beaverton","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"fdelattre@vyconenergy.com","contact\_info\_visible":false,"contact\_name":"Frank DeLattre","contact\_phone":"714-386-3818","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-08-20T20:43:14Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"VYCON's flywheels are protecting EasyStreet Online Service's data center with clean backup power. EasyStreet, an EPA Green Power Partner, is committed to green technologies and its new SAS 70, Type II audited data center has a zero carbon footprint helped by approx 1MW of VYCON’s environmentally friendly VDC-XE clean energy storage systems.\r\n\r\nThe majority of data center power consumption that can be made green is the cooling system; however EasyStreet extended its green design throughout the data center including the purchase of energy efficient uninterruptible power systems (UPSs) and flywheels as traditional battery-based UPS systems could not meet EasyStreet’s sustainability initiatives nor their need for high nines (9’s) of availability. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1495,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1495/easy.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1495/thumb\_easy.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1495/partner\_easy.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":45.487062,"longitude":-122.8037102,"master\_project\_id":null,"name":"EasyStreet Data Center VYCON Flywheels","om\_contractor":"","organization":"VYCON","owner\_1":"EasyStreet Online Services, Inc.","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.calnetix.com/newsroom/press-release/easystreet-selects-vycons-clean-energy-storage-flywheel-systems-protect-its","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":800,"size\_kwh":0.00666666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.4,"state":"Oregon","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-12-22T06:41:43Z","updated\_at\_by\_admin":"2014-08-20T22:42:47Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Portland General Electric","utility\_type":"","vendor\_company":"VYCON","zip":""}},{"project":{"announcement\_on":"2022-02-01","approval\_status":1,"city":"Austin","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"fdelattre@vyconenergy.com","contact\_info\_visible":false,"contact\_name":"Frank DeLattre","contact\_phone":"714-386-3815","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-08-20T21:02:03Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"VYCON supplied Austin Energy, the nation's ninth largest community-owned electric utility, with 4.8 MW of flywheel energy storage to protect its new Control Center. With 400,000 customers and a population of almost one million, Austin Energy has one of the nation's most comprehensive residential and commercial energy efficiency programs. The 190,000-square-foot Control Center operates the utility's data center and operates the utility's grid including the switching of utility grid quadrants. VYCON's VDC-XE flywheel systems will protect the Control Center from storms and/or other events that may compromise electrical power.\r\n\r\nInstead of using traditional battery-based uninterruptible power systems (UPSs) for its new center, Austin Energy chose flywheels in order to increase power backup reliability. Seeking a Leadership in Energy and Environmental Design (LEED) Silver rating for the new center, the flywheels offer a clean, environmentally friendly alternative to toxic lead-acid batteries. By removing UPS batteries from the power infrastructure, downtime, frequent battery maintenance, replacement and expensive cooling of the batteries have been eliminated for the next 20 years – the rated lifetime of the flywheels.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1497,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":30.267153,"longitude":-97.7430608,"master\_project\_id":null,"name":"4.8 MW Austin Energy Control Center VYCON Flywheels","om\_contractor":"","organization":"","owner\_1":"Austin Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.vyconenergy.com/pages/subpages/pr/pr\_120201.htm","primary\_reference1":"https://www.calnetix.com/sites/default/files/120201\_VYCON\_AustinEnergy.pdf","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":4800,"size\_kwh":0.00833333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.5,"state":"Texas","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-11-22T22:26:10Z","updated\_at\_by\_admin":"2014-08-20T23:54:33Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Austin Energy","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"VYCON","zip":""}},{"project":{"announcement\_on":"2022-08-06","approval\_status":1,"city":"Dallas","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Yorba Linda","contact\_country":"United States","contact\_email":"fdelattre@vyconenergy.com","contact\_info\_visible":false,"contact\_name":"Frank DeLattre","contact\_phone":"714-386-3815","contact\_state":"California","contact\_street\_address":"23695 Via Del Rio","contact\_zip":"92887","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-08-20T23:47:09Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"To mitigate unstable power, Texas Scottish Rite Hospital for Children depend on a three-phase uninterruptible power supply (UPS) and two of VYCON’s 300kW VDC-XE flywheel systems to deliver clean, reliable power to the imaging suite. If there is a power outage or if the power coming in from the utility is “dirty,” the UPS will generate smooth high-quality power from the flywheels. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1499,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1499/TSRCH.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1499/thumb\_TSRCH.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1499/partner\_TSRCH.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":32.8021433,"longitude":-96.8141251,"master\_project\_id":null,"name":"Texas Scottish Rite Hospital for Children VYCON Flywheels","om\_contractor":"","organization":"VYCON","owner\_1":"Texas Scottish Rite Hospital for Children","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.calnetix.com/texas-scottish-rite-hospital-children","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":600,"size\_kwh":0.00666666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.4,"state":"Texas","status":"Operational","street\_address":"Texas Scottish Rite Hospital for Children","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-12-23T20:43:16Z","updated\_at\_by\_admin":"2014-08-20T23:56:34Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"VYCON","zip":""}},{"project":{"announcement\_on":"2022-08-20","approval\_status":1,"city":"Phoenix","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Yorba Linda","contact\_country":"United States","contact\_email":"fdelattre@vyconenergy.com","contact\_info\_visible":false,"contact\_name":"Frank DeLattre","contact\_phone":"714-386-3816","contact\_state":"California","contact\_street\_address":"23696 Via Del Rio","contact\_zip":"92888","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-08-20T23:47:09Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Banner Good Samaritan Medical Center selected VYCON’s flywheels to protect its crucial imaging equipment against the costly effects of power fluctuations. The system utilizes a 550kVA UPS and two VYCON VDC-XE’s, the flywheels seamlessly transfer to the hospital’s six paralleled generators during a prolonged power outage.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1500,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1500/Banner.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1500/thumb\_Banner.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1500/partner\_Banner.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.4645012,"longitude":-112.057851,"master\_project\_id":null,"name":"Banner Good Samaritan Medical Center VYCON Flywheels","om\_contractor":"","organization":"VYCON","owner\_1":"Banner Good Samaritan Medical Center","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.vyconenergy.com/pq/pdfs/130626\_VYCON\_BannerCaseStudy.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":600,"size\_kwh":0.00666666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.4,"state":"Arizona","status":"Operational","street\_address":"Banner Good Samaritan Medical Center","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-12-23T19:52:47Z","updated\_at\_by\_admin":"2014-08-20T23:56:47Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"VYCON","zip":""}},{"project":{"announcement\_on":"2022-05-16","approval\_status":1,"city":"Aurora","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Yorba Linda","contact\_country":"United States","contact\_email":"fdelattre@vyconenergy.com","contact\_info\_visible":false,"contact\_name":"Frank DeLattre","contact\_phone":"714-386-3817","contact\_state":"California","contact\_street\_address":"23697 Via Del Rio","contact\_zip":"92889","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-08-20T23:47:09Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"VYCON’s VDC-XE flywheel was installed alongside a 160kVA UPS and provides 24.5 seconds of runtime at full load. Should a prolonged power outage occur, the flywheel will gracefully hand-off to the facility’s 250kW generator.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1501,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1501/vycon.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1501/thumb\_vycon.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1501/partner\_vycon.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":41.8108837,"longitude":-88.2166528,"master\_project\_id":null,"name":"Follett Calnetix (formerly VYCON) Flywheel","om\_contractor":"","organization":"Calnetix (formerly VYCON) ","owner\_1":"Follett","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.calnetix.com/newsroom/press-release/follett-higher-education-group-selects-vycon-protect-new-distribution-center","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - 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VYCON installed a VDC-XE paired with a 200 kVA UPS, which has effectively carried the pharmaceutical plant through over 50 power events with no effect to operations.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1504,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1504/vycon.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1504/thumb\_vycon.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1504/partner\_vycon.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":44.4325,"longitude":26.103889,"master\_project\_id":null,"name":"Actavis Calnetix (formerly VYCON) Flywheel","om\_contractor":"","organization":"Calnetix (formerly VYCON)","owner\_1":"Actavis","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.calnetix.com/sites/default/files/Actavis.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":300,"size\_kwh":0.00666666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.4,"state":"Bucharest","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2018-01-07T05:40:15Z","updated\_at\_by\_admin":"2014-08-20T23:58:48Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Calnetix (formerly VYCON)","zip":""}},{"project":{"announcement\_on":"2022-08-20","approval\_status":0,"city":"Okemos","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Yorba Linda","contact\_country":"United States","contact\_email":"fdelattre@vyconenergy.com","contact\_info\_visible":false,"contact\_name":"Frank DeLattre","contact\_phone":"714-386-3822","contact\_state":"California","contact\_street\_address":"23702 Via Del Rio","contact\_zip":"92894","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-08-20T23:47:11Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Four VYCON VDC flywheels are used with a 500 kVA UPS to carry the facility load during power interruption event until the emergency generators activate. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1506,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1506/vycon.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1506/thumb\_vycon.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1506/partner\_vycon.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"MISO","latitude":42.7009169,"longitude":-84.429746,"master\_project\_id":null,"name":"Delta Dental Data Center VYCON Flywheels","om\_contractor":"","organization":null,"owner\_1":"Delta Dental","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.vyconenergy.com/pq/pdfs/VYCON\_DeltaDental.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - 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Virtua Health, located in New Jersey, has partnered with VYCON to install a VDC140 Flywheel Energy Storage System at the Virtua Health data center. This installation is one of high visibility for both companies as it is in a critical application. Performance of the system is monitored remotely from VYCON’s offices in California. The system was installed and has been in operation since mid-December.\r\n\r\nThe modern power system at Virtua Health’s Gibbsboro facility utilizes Uninterruptible Power Supplies (UPS) that protect their servers from utility power disturbances. Automatic Transfer Switches (ATS), that detect loss of utility power, command the Generator sets on site to automatically start during power outages. The VDC140 is in operation with a UPS to provide ride-through power while the generator starts during a power loss or disturbance, keeping the servers on-line. The VDC140 at Virtua Health operates in parallel with Lead Acid Batteries. In this application, the VDC140 is the first line of defense, designed to be discharged before the batteries, therefore providing power to the UPS during most power disturbances. The battery DC source is discharged only if the generator does not start and in effect reduces the cycles the batteries are subjected to, extending battery life. Initial tests and actual power outages at the site have shown that during transfers to generator, the VDC140 has performed as expected providing ride-through power","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1509,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1509/vycon.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1509/thumb\_vycon.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1509/partner\_vycon.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.8381698,"longitude":-74.9648887,"master\_project\_id":null,"name":"Virtua Health Data Center Calnetix (formerly VYCON) Flywheel","om\_contractor":"","organization":"Calnetix (formerly VYCON)","owner\_1":"Virtua Health","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.calnetix.com/newsroom/press-release/vycon%E2%80%99s-bearing-less-flywheel-energy-storage-system-spins-better-healthcare","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":140,"size\_kwh":0.00666666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.4,"state":"New Jersey","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2018-02-17T06:06:23Z","updated\_at\_by\_admin":"2014-08-20T23:59:57Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Calnetix (formerly VYCON)","zip":""}},{"project":{"announcement\_on":"2022-04-17","approval\_status":1,"city":"Malverne","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"Alfred","contact\_country":"United States","contact\_email":"emersonm@epowerx.us","contact\_info\_visible":false,"contact\_name":"Marcus Emerson","contact\_phone":"(607) 382-2130","contact\_state":"New York","contact\_street\_address":"200 N. Main St.","contact\_zip":"14802","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-08-21T19:51:20Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Ioxus has fitted its ultracapacitors to the railway wayside traction power on the Long Island Rail Road (LIRR). The ultracapacitors provide voltage support to assist the traction power system, capturing and storing the energy produced by the train, using it to facilitate better acceleration and allowing for greater energy efficiency and reduced energy consumption.\r\n\r\nUltracapacitors charge and discharge quickly, making them ideal for voltage support needs and recovering energy that would otherwise be lost in light rail transportation. Ioxus ultracapacitors were selected for use on the LIRR by Electrical Power worX Corp (EPX), a company specializing in the engineering and development of energy storage systems. \r\n\r\nEPX selected Ioxus to supply ultracapacitors to the LIRR following consultation with the New York State Energy Research and Development Authority (NYSERDA). NYSERDA made its decision following successful demonstrations that detailed how Ioxus’ ultracapacitors would help the LIRR reduce energy consumption by up to 30 percent and improve railway operations.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1534,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1534/LIRR2.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1534/thumb\_LIRR2.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1534/partner\_LIRR2.png"}},"integrator\_company":"Electrical Power worX Corp","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"NYISO","latitude":40.6754071,"longitude":-73.6692196,"master\_project\_id":null,"name":"LIRR Malverne WESS: Ioxus","om\_contractor":"","organization":"","owner\_1":"Electrical Power worX Corp","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.ioxus.com/english/media/press-releases/ioxus-technology-selected-help-long-island-rail-road-trains-reduce-energy-consumption/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"New York State Energy Research and Development Authority","research\_institution\_link":"http://www.nyserda.org","service\_use\_case\_1":"Transportation Services","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.0166666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":1.0,"state":"New York","status":"Operational","street\_address":"280 Hempstead Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical Capacitor","technology\_type\_l1":"Electro-chemical Capacitor","technology\_type\_l2":"Electro-chemical Capacitor","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-10T01:15:07Z","updated\_at\_by\_admin":"2015-12-24T03:23:41Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Ioxus","zip":"11565"}},{"project":{"announcement\_on":"2022-08-19","approval\_status":1,"city":"St. Paul Island","commissioning\_on":"2022-12-01","companion":" 3 Vestas V27 wind turbines, 2 150kW Volvo diesel generators","construction\_on":"2022-11-01","contact\_city":"","contact\_country":"United States","contact\_email":"nickerson@beaconpower.com","contact\_info\_visible":false,"contact\_name":"Dave Nickerson","contact\_phone":"781-910-9736","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"TDX Power","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-08-21T21:31:31Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"TDX Corporation is the Alaska Native Village Corporation, (ANC) for the Community of St. Paul. TDX financed and built the first and only North American owned and operated high penetration hybrid power plant in Alaska on St. Paul Island. The generation for the high penetration hybrid microgrid system is provided by a 225kW Vestas V27 wind turbine, and two 150kW Volvo diesel generators, along with smart switch technology and a synchronizing condenser. Originally commissioned in 1999, the plant supplies electricity and heat to an industrial/airport facility, and has reduced the cost of electricity and heat to 40% of the original diesel based generation cost. \r\n\r\nBeacon’s technology will enable TDX to further improve wind utilization, delivering projected fuel savings of up to 30 percent over existing (pre flywheel) consumption levels. This project received sponsorship from the Alaska Energy Authority’s Emerging Energy Technology Fund to demonstrate the flywheel energy storage system’s ability to improve system efficiencies in remote and harsh environments and create a model for use across Alaska’s remote grid community and other island and remote grid systems.","developer":"TDX Power","electronics\_provider":"Beacon Power, LLC","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"Private/Third Party","funding\_source\_3":"","funding\_source\_details\_1":"Alaska Energy Authority Emerging Energy Technology Fund","funding\_source\_details\_2":"TDX Power","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1535,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1535/TDX\_St\_Paul.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1535/thumb\_TDX\_St\_Paul.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1535/partner\_TDX\_St\_Paul.png"}},"integrator\_company":"TDX Power","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":57.1224981,"longitude":-170.2799461,"master\_project\_id":null,"name":"St Paul Island Wind/Diesel/Beacon Flywheel Power Plant Demonstration - TDX Power","om\_contractor":"","organization":"Beacon Power, LLC","owner\_1":"TDX Power","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://beaconpower.com/wp-content/uploads/2014/08/bp\_news\_tdx\_beacon\_project\_0819141.pdf","primary\_reference1":"http://www.tdxpower.com/projects-commercial","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":160,"size\_kwh":0.0833333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":5.0,"state":"Alaska","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2018-02-06T08:30:01Z","updated\_at\_by\_admin":"2016-08-02T18:33:05Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"TDX Power","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Beacon Power, LLC","zip":""}},{"project":{"announcement\_on":"2022-10-02","approval\_status":2,"city":"Codrongianos and 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\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1536,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":37.5999938,"longitude":14.0153557,"master\_project\_id":"1537","name":"Terna Grid Defense Plan Phase II (1)","om\_contractor":"","organization":null,"owner\_1":"Terna 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Sicily","status":"Announced","street\_address":"Codrongianos Electric Station (Sardinia) and Casuzze Electric Station (Sicily)","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-27T14:30:08Z","updated\_at\_by\_admin":"2014-08-27T14:30:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"Terna","utility\_type":"Investor Owned","vendor\_company":"Tender in process","zip":""}},{"project":{"announcement\_on":"2022-10-02","approval\_status":2,"city":"Codrongianos and Casuzze","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Anna Carolina Tortora","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 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\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1537,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":37.5999938,"longitude":14.0153557,"master\_project\_id":"1536","name":"Terna Grid Defense Plan Phase II (2)","om\_contractor":"","organization":null,"owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.terna.it/default/home\_en/the\_company/about\_terna/Terna\_Storage\_en.aspx","primary\_reference1":null,"projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Transmission upgrades due to wind","service\_use\_case\_3":"Transmission Support","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"Black Start","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":4000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Sardinia and 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Galbani 70","contact\_zip":"00156","contractor\_1":"Col Giovanni SpA","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"NGK Insulators, Ltd.and Terna S.p.A, Italy's largest transmission system operator (TSO) came to a framework agreement for supply of a NaS battery system. This represents the first large scale NaS battery energy storage system installation in European grid system.\r\n\r\nAccording to the framework agreement, maximum quantity equal to 70,000 kW (490,000 kWh for 7 hours discharge) of the NaS battery system will be supplied for installation in the Italian transmission grid. The first phase order under this agreement is expected with the volume of 35,000 kW (245,000 kWh) for about 100 million euros.\r\n\r\nTERNA plans to utilize the NaS battery at a substation in order to balance the demand and supply of electricity instantaneously and stabilize the transmission grid for optimum performance under the massive increase of intermittent renewable energy.","developer":"","electronics\_provider":"Nidec","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1538,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Col Giovanni SpA","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":41.0760492,"longitude":15.1519998,"master\_project\_id":null,"name":"Terna SANC Project (1)","om\_contractor":"","organization":"","owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.terna.it/en-gb/sistemaelettrico/progettipilotadiaccumulo.aspx","primary\_reference1":"","projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transmission Congestion Relief","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":12000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Campania","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-26T23:27:45Z","updated\_at\_by\_admin":"2016-03-17T12:11:58Z","updated\_by":null,"updated\_by\_email":null,"utility":"Terna S.p.A.","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":"83040"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":1,"city":"Miscano","commissioning\_on":"2021-12-31","companion":"","construction\_on":"2022-01-20","contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Enrico Senatore","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"Siemens SpA","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"NGK Insulators, Ltd.and Terna S.p.A, Italy's largest transmission system operator (TSO) came to a framework agreement for supply of a NaS battery system. This represents the first large scale NaS battery energy storage system installation in European grid system.\r\n\r\nAccording to the framework agreement, maximum quantity equal to 70,000 kW (490,000 kWh for 7 hours discharge) of the NaS battery system will be supplied for installation in the Italian transmission grid. The first phase order under this agreement is expected with the volume of 35,000 kW (245,000 kWh) for about 100 million euros.\r\n\r\nTERNA plans to utilize the NaS battery at a substation in order to balance the demand and supply of electricity instantaneously and stabilize the transmission grid for optimum performance under the massive increase of intermittent renewable energy.","developer":"","electronics\_provider":"Nidec","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1539,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Siemens SpA","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":41.2993991,"longitude":15.0852503,"master\_project\_id":null,"name":"Terna SANC Project (2)","om\_contractor":"","organization":"","owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.terna.it/en-gb/sistemaelettrico/progettipilotadiaccumulo.aspx","primary\_reference1":"","projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transmission Congestion Relief","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":12000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Campania","status":"Operational","street\_address":"Castelfranco","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-26T23:27:15Z","updated\_at\_by\_admin":"2016-03-17T12:12:32Z","updated\_by":null,"updated\_by\_email":null,"utility":"Terna S.p.A.","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":"82022"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":1,"city":"Scampitella","commissioning\_on":"2022-05-01","companion":"","construction\_on":"2022-07-31","contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Enrico Senatore","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"Ducati SpA","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:49Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"NGK Insulators, Ltd.and Terna S.p.A, Italy's largest transmission system operator (TSO) came to a framework agreement for supply of a NaS battery system. This represents the first large scale NaS battery energy storage system installation in European grid system.\r\n\r\nAccording to the framework agreement, maximum quantity equal to 70,000 kW (490,000 kWh for 7 hours discharge) of the NaS battery system will be supplied for installation in the Italian transmission grid. The first phase order under this agreement is expected with the volume of 35,000 kW (245,000 kWh) for about 100 million euros.\r\n\r\nTERNA plans to utilize the NaS battery at a substation in order to balance the demand and supply of electricity instantaneously and stabilize the transmission grid for optimum performance under the massive increase of intermittent renewable energy.","developer":"","electronics\_provider":"Nidec","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1540,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Ducati SpA","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":41.0911341,"longitude":15.2998521,"master\_project\_id":null,"name":"Terna SANC Project (3)","om\_contractor":"","organization":"","owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.terna.it/en-gb/sistemaelettrico/progettipilotadiaccumulo.aspx","primary\_reference1":"","projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transmission Congestion Relief","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":10800,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Campania","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-26T23:55:57Z","updated\_at\_by\_admin":"2016-03-17T12:13:20Z","updated\_by":null,"updated\_by\_email":null,"utility":"Terna S.p.A.","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":"83050"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":1,"city":"Codrongianos ","commissioning\_on":"2021-12-31","companion":"","construction\_on":"2022-02-18","contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Anna Carolina Tortora","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:49Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Terna S.p.a., Europe's largest independent transmission system operator, is setting up Storage Labs in Sardinia and Sicily to investigate several different battery storage technologies, seeking best solutions to support grid operation under different conditions of use.\r\n\r\nTerna S.p.a. will use Toshiba's BESS to help manage Sardinia's grid. The main applications will be primary and secondary frequency regulation, voltage regulation and power balancing. The system is also capable of off grid operation and black start. Because of the continued increase of non-programmable renewable energy sources - and the consequent loss of spinning reserve, these applications and becoming increasingly important for transmission grids, and BESS are emerging as the best solution for their management.","developer":"","electronics\_provider":"Green Utility","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1541,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1541/NewsImage\_22273.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1541/thumb\_NewsImage\_22273.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1541/partner\_NewsImage\_22273.jpg"}},"integrator\_company":"Younicos","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":40.6576498,"longitude":8.6793515,"master\_project\_id":null,"name":"Terna Storage Lab 1, Sardinia (1)","om\_contractor":"","organization":"","owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.azocleantech.com/news.aspx?newsID=22273","primary\_reference1":"https://www.terna.it/en-gb/sistemaelettrico/progettipilotadiaccumulo.aspx","projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Transmission Support","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Sardinia","status":"Operational","street\_address":"Codrongianos Electric Station","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-09T03:53:16Z","updated\_at\_by\_admin":"2015-08-06T21:42:49Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Terna S.p.A","utility\_type":"Investor Owned","vendor\_company":"Samsung SDI","zip":"7040"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":1,"city":"Codrongianos ","commissioning\_on":"2021-12-31","companion":"","construction\_on":"2022-02-18","contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Anna Carolina Tortora","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:49Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project goal is to increase the security of electricity systems in Sicily and Sardinia with the installation of storage systems for a total 40 MW capacity.\r\nThe project is divided into two phases. 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Italian and foreign universities and research centers will be part of such challenging activities.\r\n \r\n","developer":"","electronics\_provider":"Nidec","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1542,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":40.6576498,"longitude":8.6793515,"master\_project\_id":null,"name":"Terna Storage Lab 1, Sardinia (2)","om\_contractor":"","organization":"","owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.terna.it/en-gb/sistemaelettrico/progettipilotadiaccumulo.aspx","primary\_reference1":"","projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Transmission Support","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1200,"size\_kwh":0.766666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":46.0,"state":"Sardinia","status":"Operational","street\_address":"Codrongianos Electric Station","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Nickel Cobalt Aluminum Battery","technology\_type\_l1":"Lithium Nickel Cobalt Aluminum Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-09T03:58:50Z","updated\_at\_by\_admin":"2014-08-22T16:56:21Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Terna","utility\_type":"Investor Owned","vendor\_company":"Saft","zip":"7040"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":1,"city":"Codrongianos ","commissioning\_on":"2021-12-31","companion":"","construction\_on":"2022-02-18","contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Anna Carolina Tortora","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project goal is to increase the security of electricity systems in Sicily and Sardinia with the installation of storage systems for a total 40 MW capacity.\r\nThe project is divided into two phases. 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Italian and foreign universities and research centers will be part of such challenging activities.\r\n \r\n","developer":"","electronics\_provider":"ELVI","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1543,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"TOSHIBA","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":40.6576498,"longitude":8.6793515,"master\_project\_id":null,"name":"Terna Storage Lab 1, Sardinia (3)","om\_contractor":"","organization":"","owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.terna.it/en-gb/sistemaelettrico/progettipilotadiaccumulo.aspx","primary\_reference1":"","projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Transmission Support","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1000,"size\_kwh":1.01666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":1.0,"state":"Sardinia","status":"Operational","street\_address":"Codrongianos Electric Station","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-09T03:53:29Z","updated\_at\_by\_admin":"2015-08-06T21:26:08Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Terna S.p.A.","utility\_type":"Investor Owned","vendor\_company":"Toshiba","zip":"7040"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":1,"city":"Codrongianos ","commissioning\_on":"2021-12-31","companion":"","construction\_on":"2022-02-18","contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Anna Carolina Tortora","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project goal is to increase the security of electricity systems in Sicily and Sardinia with the installation of storage systems for a total 40 MW capacity.\r\nThe project is divided into two phases. 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Italian and foreign universities and research centers will be part of such challenging activities.\r\n \r\n","developer":"","electronics\_provider":"Siemens","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1544,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Siemens","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":40.6576498,"longitude":8.6793515,"master\_project\_id":null,"name":"Terna Storage Lab 1, Sardinia (4)","om\_contractor":"","organization":"","owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.terna.it/en-gb/sistemaelettrico/progettipilotadiaccumulo.aspx","primary\_reference1":"","projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Transmission Support","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1080,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Sardinia","status":"Operational","street\_address":"Codrongianos Electric Station","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-09T03:57:15Z","updated\_at\_by\_admin":"2014-08-22T16:55:25Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Terna","utility\_type":"Investor Owned","vendor\_company":"LG Chem Ltd.","zip":"7040"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":1,"city":"Codrongianos ","commissioning\_on":"2021-12-31","companion":"","construction\_on":"2022-02-18","contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Anna Carolina Tortora","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project goal is to increase the security of electricity systems in Sicily and Sardinia with the installation of storage systems for a total 40 MW capacity.\r\nThe project is divided into two phases. Phase 1, called “Storage Lab”, plans the installation of two multi-technology power plants (different storage technologies and at least 8 different commercial products) for a total 16 MW in Sicily and Sardinia. Based on the results of phase 1, additional 24 MW will be installed with the use of the most promising technologies.\r\nThe Storage Lab batteries will be supplied by Italian and foreign companies. Storage Lab will not only support for the safe management of the electricity grid, but also host activities to develop Smart Grid applications. Italian and foreign universities and research centers will be part of such challenging activities.\r\n \r\n","developer":"","electronics\_provider":"Nidec","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1545,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"SAET","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":40.6576498,"longitude":8.6793515,"master\_project\_id":null,"name":"Terna Storage Lab 1, Sardinia (5)","om\_contractor":"","organization":"","owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.terna.it/en-gb/sistemaelettrico/progettipilotadiaccumulo.aspx","primary\_reference1":"","projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Transmission Support","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1000,"size\_kwh":1.23333333333333,"size\_kwh\_hours":1,"size\_kwh\_minutes":14.0,"state":"Sardinia","status":"Operational","street\_address":"Codrongianos Electric Station","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-09T03:53:38Z","updated\_at\_by\_admin":"2014-11-07T19:46:06Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Terna S.p.A.","utility\_type":"Investor Owned","vendor\_company":"BYD","zip":"7040"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":1,"city":"Codrongianos ","commissioning\_on":"2021-12-31","companion":"","construction\_on":"2022-02-18","contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Anna Carolina Tortora","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project goal is to increase the security of electricity systems in Sicily and Sardinia with the installation of storage systems for a total 40 MW capacity.\r\nThe project is divided into two phases. 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Italian and foreign universities and research centers will be part of such challenging activities.\r\n \r\n","developer":"","electronics\_provider":"Nidec","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1546,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"FIAMM Energy Storage Solutions","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":40.6576498,"longitude":8.6793515,"master\_project\_id":null,"name":"Terna Storage Lab 1, Sardinia (6)","om\_contractor":"","organization":"","owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.terna.it/en-gb/sistemaelettrico/progettipilotadiaccumulo.aspx","primary\_reference1":"","projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Transmission Support","service\_use\_case\_4":"Transmission upgrades due to wind","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1200,"size\_kwh":3.45,"size\_kwh\_hours":3,"size\_kwh\_minutes":27.0,"state":"Sardinia","status":"Operational","street\_address":"Codrongianos Electric Station","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-09T03:59:09Z","updated\_at\_by\_admin":"2014-11-07T21:00:35Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Terna S.p.A.","utility\_type":"Investor Owned","vendor\_company":"FIAMM Energy Storage Solutions","zip":"7040"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":1,"city":"Codrongianos ","commissioning\_on":"2021-12-31","companion":"","construction\_on":"2022-02-18","contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Anna Carolina Tortora","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project goal is to increase the security of electricity systems in Sicily and Sardinia with the installation of storage systems for a total 40 MW capacity.\r\nThe project is divided into two phases. 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Italian and foreign universities and research centers will be part of such challenging activities.\r\n \r\n","developer":"","electronics\_provider":"Dynapower","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1547,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"GE Energy Storage","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":40.6576498,"longitude":8.6793515,"master\_project\_id":null,"name":"Terna Storage Lab 1, Sardinia (7)","om\_contractor":"","organization":"","owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.terna.it/en-gb/sistemaelettrico/progettipilotadiaccumulo.aspx","primary\_reference1":"","projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Transmission Support","service\_use\_case\_4":"Transmission upgrades due to wind","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Sardinia","status":"Operational","street\_address":"Codrongianos Electric Station","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-09T03:53:53Z","updated\_at\_by\_admin":"2014-08-22T16:53:17Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Terna","utility\_type":"Investor Owned","vendor\_company":"GE Energy Storage","zip":"7040"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":2,"city":"Codrongianos ","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Anna Carolina Tortora","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project goal is to increase the security of electricity systems in Sicily and Sardinia with the installation of storage systems for a total 40 MW capacity.\r\nThe project is divided into two phases. 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Italian and foreign universities and research centers will be part of such challenging activities.\r\n \r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1548,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":40.6576498,"longitude":8.6793515,"master\_project\_id":"1549:1547:1546:1545:1544:1543:1542:1541","name":"Terna Storage Lab 1, Sardinia (8)","om\_contractor":"","organization":null,"owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.terna.it/default/home\_en/the\_company/about\_terna/Terna\_Storage\_en.aspx","primary\_reference1":null,"projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Transmission upgrades due to wind","service\_use\_case\_3":"Transmission Support","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"Black Start","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Sardinia","status":"Announced","street\_address":"Codrongianos Electric Station","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-22T16:52:31Z","updated\_at\_by\_admin":"2014-08-22T16:52:30Z","updated\_by":null,"updated\_by\_email":null,"utility":"Terna","utility\_type":"Investor Owned","vendor\_company":"Tender in process","zip":"7040"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":2,"city":"Codrongianos ","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Anna Carolina Tortora","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project goal is to increase the security of electricity systems in Sicily and Sardinia with the installation of storage systems for a total 40 MW capacity.\r\nThe project is divided into two phases. 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Italian and foreign universities and research centers will be part of such challenging activities.\r\n \r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1549,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":40.6576498,"longitude":8.6793515,"master\_project\_id":"1548:1547:1546:1545:1544:1543:1542:1541","name":"Terna Storage Lab 1, Sardinia (9)","om\_contractor":"","organization":null,"owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.terna.it/default/home\_en/the\_company/about\_terna/Terna\_Storage\_en.aspx","primary\_reference1":null,"projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Transmission upgrades due to wind","service\_use\_case\_3":"Transmission Support","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":1000,"size\_kwh":0.0166666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":1.0,"state":"Sardinia","status":"Announced","street\_address":"Codrongianos Electric Station","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical Capacitor","technology\_type\_l1":"Electro-chemical Capacitor","technology\_type\_l2":"Electro-chemical Capacitor","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-22T16:51:59Z","updated\_at\_by\_admin":"2014-08-22T16:51:59Z","updated\_by":null,"updated\_by\_email":null,"utility":"Terna","utility\_type":"Investor Owned","vendor\_company":"Tender in process","zip":"7040"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":1,"city":"Ciminna","commissioning\_on":"2022-02-01","companion":"","construction\_on":"2022-05-23","contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Anna Carolina Tortora","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project goal is to increase the security of electricity systems in Sicily and Sardinia with the installation of storage systems for a total 40 MW capacity.\r\nThe project is divided into two phases. 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Italian and foreign universities and research centers will be part of such challenging activities.\r\n \r\n","developer":"","electronics\_provider":"Green Utility","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1550,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Younicos","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":37.8964116,"longitude":13.5602194,"master\_project\_id":null,"name":"Terna Storage Lab 2, Sicily (1)","om\_contractor":"","organization":"","owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.terna.it/en-gb/sistemaelettrico/progettipilotadiaccumulo.aspx","primary\_reference1":"","projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Transmission Support","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1000,"size\_kwh":0.9,"size\_kwh\_hours":0,"size\_kwh\_minutes":54.0,"state":"Sicily","status":"Operational","street\_address":"Ciminna Electric Station","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-09T03:54:01Z","updated\_at\_by\_admin":"2014-08-22T16:49:42Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Terna S.p.A.","utility\_type":"Investor Owned","vendor\_company":"Samsung SDI","zip":"90023"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":2,"city":"Ciminna","commissioning\_on":"2022-02-01","companion":"","construction\_on":"2022-05-23","contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Anna Carolina Tortora","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:51Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project goal is to increase the security of electricity systems in Sicily and Sardinia with the installation of storage systems for a total 40 MW capacity.\r\nThe project is divided into two phases. Phase 1, called “Storage Lab”, plans the installation of two multi-technology power plants (different storage technologies and at least 8 different commercial products) for a total 16 MW in Sicily and Sardinia. Based on the results of phase 1, additional 24 MW will be installed with the use of the most promising technologies.\r\nThe Storage Lab batteries will be supplied by Italian and foreign companies. Storage Lab will not only support for the safe management of the electricity grid, but also host activities to develop Smart Grid applications. Italian and foreign universities and research centers will be part of such challenging activities.\r\n \r\n","developer":"","electronics\_provider":"Nidec","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1551,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":37.8964116,"longitude":13.5602194,"master\_project\_id":"1556:1555:1554:1553:1552:1550","name":"Terna Storage Lab 2, Sicily (2)","om\_contractor":"","organization":null,"owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.terna.it/default/home\_en/the\_company/about\_terna/Terna\_Storage\_en.aspx","primary\_reference1":null,"projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"Transmission Support","service\_use\_case\_5":"Black Start","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":900,"size\_kwh":0.633333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":38.0,"state":"Sicily","status":"Operational","street\_address":"Ciminna Electric Station","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Nickel Cobalt Aluminum Battery","technology\_type\_l1":"Lithium Nickel Cobalt Aluminum Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-22T16:49:20Z","updated\_at\_by\_admin":"2014-08-22T16:49:20Z","updated\_by":null,"updated\_by\_email":null,"utility":"Terna S.p.A.","utility\_type":"Investor Owned","vendor\_company":"Saft","zip":"90023"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":1,"city":"Ciminna","commissioning\_on":"2022-02-01","companion":"","construction\_on":"2022-05-23","contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Anna Carolina Tortora","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:51Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project goal is to increase the security of electricity systems in Sicily and Sardinia with the installation of storage systems for a total 40 MW capacity.\r\nThe project is divided into two phases. 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Italian and foreign universities and research centers will be part of such challenging activities.\r\n \r\n","developer":"","electronics\_provider":"Elvi","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1552,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":37.8964116,"longitude":13.5602194,"master\_project\_id":null,"name":"Terna Storage Lab 2, Sicily (3)","om\_contractor":"","organization":"","owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.terna.it/en-gb/sistemaelettrico/progettipilotadiaccumulo.aspx","primary\_reference1":"","projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Transmission Support","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1000,"size\_kwh":1.01666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":1.0,"state":"Sicily","status":"Operational","street\_address":"Ciminna Electric Station","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-18T04:12:25Z","updated\_at\_by\_admin":"2014-08-22T16:48:39Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Terna S.p.A.","utility\_type":"Investor Owned","vendor\_company":"Toshiba","zip":"90023"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":1,"city":"Ciminna","commissioning\_on":"2022-02-01","companion":"","construction\_on":"2022-05-23","contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Anna Carolina Tortora","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:51Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project goal is to increase the security of electricity systems in Sicily and Sardinia with the installation of storage systems for a total 40 MW capacity.\r\nThe project is divided into two phases. Phase 1, called “Storage Lab”, plans the installation of two multi-technology power plants (different storage technologies and at least 8 different commercial products) for a total 16 MW in Sicily and Sardinia. Based on the results of phase 1, additional 24 MW will be installed with the use of the most promising technologies.\r\nThe Storage Lab batteries will be supplied by Italian and foreign companies. Storage Lab will not only support for the safe management of the electricity grid, but also host activities to develop Smart Grid applications. Italian and foreign universities and research centers will be part of such challenging activities.\r\n \r\n","developer":"","electronics\_provider":"Nidec","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1553,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Saet","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":37.8964116,"longitude":13.5602194,"master\_project\_id":null,"name":"Terna Storage Lab 2, Sicily (4)","om\_contractor":"","organization":"","owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.terna.it/en-gb/sistemaelettrico/progettipilotadiaccumulo.aspx","primary\_reference1":"","projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Transmission Support","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1000,"size\_kwh":1.21666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":13.0,"state":"Sicily","status":"Operational","street\_address":"Ciminna Electric Station","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-18T04:11:52Z","updated\_at\_by\_admin":"2014-11-07T19:46:26Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Terna S.p.A.","utility\_type":"Investor Owned","vendor\_company":"BYD","zip":"90023"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":1,"city":"Ciminna","commissioning\_on":"2022-02-01","companion":"","construction\_on":"2022-05-23","contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Anna Carolina Tortora","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:51Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project goal is to increase the security of electricity systems in Sicily and Sardinia with the installation of storage systems for a total 40 MW capacity.\r\nThe project is divided into two phases. Phase 1, called “Storage Lab”, plans the installation of two multi-technology power plants (different storage technologies and at least 8 different commercial products) for a total 16 MW in Sicily and Sardinia. Based on the results of phase 1, additional 24 MW will be installed with the use of the most promising technologies.\r\nThe Storage Lab batteries will be supplied by Italian and foreign companies. Storage Lab will not only support for the safe management of the electricity grid, but also host activities to develop Smart Grid applications. Italian and foreign universities and research centers will be part of such challenging activities.\r\n \r\n","developer":"","electronics\_provider":"Nidec","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1554,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"FIAMM","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":37.8964116,"longitude":13.5602194,"master\_project\_id":null,"name":"Terna Storage Lab 2, Sicily (5)","om\_contractor":"","organization":"","owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.terna.it/en-gb/sistemaelettrico/progettipilotadiaccumulo.aspx","primary\_reference1":"","projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Transmission Support","service\_use\_case\_4":"Transmission upgrades due to wind","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":1200,"size\_kwh":3.45,"size\_kwh\_hours":3,"size\_kwh\_minutes":27.0,"state":"Sicily","status":"Operational","street\_address":"Ciminna Electric Station","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-09T03:59:29Z","updated\_at\_by\_admin":"2014-11-07T20:59:47Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Terna S.p.A","utility\_type":"Investor Owned","vendor\_company":"FIAMM","zip":"90023"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":2,"city":"Ciminna","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Anna Carolina Tortora","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:52Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project goal is to increase the security of electricity systems in Sicily and Sardinia with the installation of storage systems for a total 40 MW capacity.\r\nThe project is divided into two phases. Phase 1, called “Storage Lab”, plans the installation of two multi-technology power plants (different storage technologies and at least 8 different commercial products) for a total 16 MW in Sicily and Sardinia. Based on the results of phase 1, additional 24 MW will be installed with the use of the most promising technologies.\r\nThe Storage Lab batteries will be supplied by Italian and foreign companies. Storage Lab will not only support for the safe management of the electricity grid, but also host activities to develop Smart Grid applications. Italian and foreign universities and research centers will be part of such challenging activities.\r\n \r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1555,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":37.8964116,"longitude":13.5602194,"master\_project\_id":"1550:1551:1552:1553:1554:1556","name":"Terna Storage Lab 2, Sicily (6)","om\_contractor":"","organization":null,"owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.terna.it/default/home\_en/the\_company/about\_terna/Terna\_Storage\_en.aspx","primary\_reference1":null,"projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Transmission upgrades due to wind","service\_use\_case\_3":"Transmission Support","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"Black Start","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":500,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Sicily","status":"Announced","street\_address":"Ciminna Electric Station","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-22T16:47:27Z","updated\_at\_by\_admin":"2014-08-22T16:47:27Z","updated\_by":null,"updated\_by\_email":null,"utility":"Terna","utility\_type":"Investor Owned","vendor\_company":"Tender in process","zip":"90023"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":2,"city":"Ciminna","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Rome","contact\_country":"Italy","contact\_email":"info@terna.it","contact\_info\_visible":true,"contact\_name":"Anna Carolina Tortora","contact\_phone":"","contact\_state":"Lazio","contact\_street\_address":"Via Galbani 70","contact\_zip":"00156","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-08-22T16:38:52Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project goal is to increase the security of electricity systems in Sicily and Sardinia with the installation of storage systems for a total 40 MW capacity.\r\nThe project is divided into two phases. Phase 1, called “Storage Lab”, plans the installation of two multi-technology power plants (different storage technologies and at least 8 different commercial products) for a total 16 MW in Sicily and Sardinia. Based on the results of phase 1, additional 24 MW will be installed with the use of the most promising technologies.\r\nThe Storage Lab batteries will be supplied by Italian and foreign companies. Storage Lab will not only support for the safe management of the electricity grid, but also host activities to develop Smart Grid applications. Italian and foreign universities and research centers will be part of such challenging activities.\r\n \r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1556,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":37.8964116,"longitude":13.5602194,"master\_project\_id":"1550:1551:1552:1553:1554:1555","name":"Terna Storage Lab 2, Sicily (7)","om\_contractor":"","organization":null,"owner\_1":"Terna S.p.A.","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.terna.it/default/home\_en/the\_company/about\_terna/Terna\_Storage\_en.aspx","primary\_reference1":null,"projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Transmission upgrades due to wind","service\_use\_case\_3":"Transmission Support","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":920,"size\_kwh":0.0166666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":1.0,"state":"Sicily","status":"Announced","street\_address":"Ciminna Electric Station","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical Capacitor","technology\_type\_l1":"Electro-chemical Capacitor","technology\_type\_l2":"Electro-chemical Capacitor","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-08-22T16:47:35Z","updated\_at\_by\_admin":"2014-08-22T16:47:35Z","updated\_by":null,"updated\_by\_email":null,"utility":"Terna","utility\_type":"Investor Owned","vendor\_company":"Tender in process","zip":"90023"}},{"project":{"announcement\_on":"2022-08-12","approval\_status":1,"city":"Rutland","commissioning\_on":"2022-09-01","companion":"2 MW PV","construction\_on":"2022-08-12","contact\_city":"Colchester","contact\_country":"United States","contact\_email":"Josh.Castonguay@GreenMountainPower.com","contact\_info\_visible":true,"contact\_name":"Josh Castonguay, Project Manager GMP","contact\_phone":"(802) 324-8359","contact\_state":"Vermont","contact\_street\_address":"163 Acorn Lane","contact\_zip":"05446","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":2500000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-08-22T22:16:14Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Mountain Power constructed an innovative new solar project to improve resiliency and safety in communities, by generating clean energy that can be stored and used to power an emergency shelter at Rutland High School during a storm. According to the U.S. Department of Energy, The Stafford Hill Solar Farm is the first project to establish a micro-grid powered solely by solar and battery back-up, with no other fuel source.\r\n\r\nStafford Hill includes 7,700 solar panels that can generate 2 MW of electricity, enough to power about 2,000 homes during full sun, or 365 homes year-round. It also includes 4 MW of battery storage to store solar generation, which will provide many benefits to customers, including allowing the disconnection of an entire circuit from the grid in an emergency and providing critical power for an emergency shelter at the high school.\r\n\r\nThe Stafford Hill Solar Farm is sited at the closed Rutland City landfill, and is the first known solar storage project in the country to repurpose brownfield land once used to bury waste for the siting of renewable energy.","developer":"Green Mountain Power, Clean Energy States Alliance (CESA)","electronics\_provider":"Dynapower Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"Federal/National American Recovery and Reinvestment Act of 2009 - RD&D","funding\_source\_3":"Private/Third Party Equity","funding\_source\_details\_1":"Vermont Public Services Department","funding\_source\_details\_2":"US Department of Energy, Office of Electricity","funding\_source\_details\_3":"Green Mountain Power","gmaps":true,"hidden":false,"id":1557,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1557/Stafford.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1557/thumb\_Stafford.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1557/partner\_Stafford.jpg"}},"integrator\_company":"Dynapower Corporation","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":43.619416,"longitude":-72.950449,"master\_project\_id":null,"name":"Stafford Hill Solar Farm & Microgrid: Lithium Ion","om\_contractor":"","organization":"","owner\_1":"Green Mountain 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The remote nature of many of the sites and the fragile infrastructure left the regional susceptible \r\nto outages.\r\n\r\nEnerDel commissioned a 1.5 Mw (2.5 MWh) to protect Psou Substation's critical loads against supply interruptions. Primarily functioning as a UPS, the system also provides ancillary services of frequency regulation and peak shaving.\r\n\r\nParker Hannifin provided the PCS and cooling systems, ABB provided the transformer and switchgear, and Rockwell Automation provided the controls and automation. 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The Bureau accounted for 45% of all the greenhouse gas emissions generated by the Tokyo Metropolitan Government, and sought to reduce emissions by instituting a number of energy efficiency measures and incorporating sodium batteries.\r\n\r\nThe Kasai Water Reclamation Center's ESS consists of 2.4 MW NGK Insulators Ltd. NaS units. Half were installed in Dec. 2001 and the other half in Aug. 2003. The system provides load leveling and backup power.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1560,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.64874,"longitude":139.851989,"master\_project\_id":null,"name":"NGK NaS: Kasai Water Reclamation Center","om\_contractor":"","organization":"","owner\_1":"Bureau of Sewerage, The Tokyo Metropolitan Government","owner\_2":"","owner\_type":"3","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://pubs.iir.hit-u.ac.jp/admin/en/pdfs/file/1667","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2400,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Tokyo","status":"Operational","street\_address":"1-1-1 Rinkaicho","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T20:10:34Z","updated\_at\_by\_admin":"2014-11-07T21:44:35Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Tokyo Electric Power Company (TEPCO)","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Ota-ku","commissioning\_on":"2022-04-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"d-umi@ngk.co.jp","contact\_info\_visible":false,"contact\_name":"d-umi","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2014-09-05T23:14:54Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Bureau of Sewerage, Tokyo Metropolitan Government launched an ambitious response to the Kyoto Protocol. The Bureau accounted for 45% of all the greenhouse gas emissions generated by the Tokyo Metropolitan Government, and sought to reduce emissions by instituting a number of energy efficiency measures and incorporating sodium batteries. \r\n\r\nThe Morigasaki Water Reclamation Center's ESS consists of 4 x 2 MW NGK Insulators Ltd. NaS units. The system provides load leveling and backup power.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1561,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1561/11\_01\_06.gif","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1561/thumb\_11\_01\_06.gif"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1561/partner\_11\_01\_06.gif"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.568724,"longitude":139.751116,"master\_project\_id":null,"name":"NGK NaS: Morigasaki Water Reclamation Center","om\_contractor":"","organization":"","owner\_1":"Bureau of Sewerage, The Tokyo Metropolitan Government","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.abh-ace.be/sites/default/files/News/Invisible/energy\_storage\_landscape\_in\_japan.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":8000,"size\_kwh":7.25,"size\_kwh\_hours":7,"size\_kwh\_minutes":15.0,"state":"Tokyo","status":"Operational","street\_address":"5-2-25 Omori minami","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-28T00:06:26Z","updated\_at\_by\_admin":"2014-11-07T21:44:48Z","updated\_by":null,"updated\_by\_email":null,"utility":"Tokyo Electric Power Company (TEPCO)","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Koto-ku","commissioning\_on":"2022-05-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"JBartell@strategen.com","contact\_info\_visible":false,"contact\_name":"Jake Bartell","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2014-09-05T23:14:55Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Bureau of Sewerage, Tokyo Metropolitan Government launched an ambitious response to the Kyoto Protocol. The Bureau accounted for 45% of all the greenhouse gas emissions generated by the Tokyo Metropolitan Government, and sought to reduce emissions by instituting a number of energy efficiency measures and incorporating sodium batteries. \r\n\r\nThe Sunamachi Water Reclamation Center's ESS consists of a 2 MW NGK Insulators Ltd. NaS unit. The system provides load leveling and backup power.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1562,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.6569697,"longitude":139.8350141,"master\_project\_id":null,"name":"NGK NaS: Sunamachi Water Reclamation Center","om\_contractor":"","organization":"d-umi@ngk.co.jp","owner\_1":"Bureau of Sewerage, The Tokyo Metropolitan Government","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.eubusinessinjapan.eu/sites/default/files/energy\_storage\_landscape\_in\_japan.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Tokyo","status":"Operational","street\_address":"3-9-1 Shinsuna","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T07:08:14Z","updated\_at\_by\_admin":"2014-11-07T21:45:04Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Tokyo Electric Power Company (TEPCO)","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Adachi-ku","commissioning\_on":"2022-04-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"JBartell@strategen.com","contact\_info\_visible":false,"contact\_name":"Jake Bartell","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2014-09-05T23:14:55Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Bureau of Sewerage, Tokyo Metropolitan Government launched an ambitious response to the Kyoto Protocol. The Bureau accounted for 45% of all the greenhouse gas emissions generated by the Tokyo Metropolitan Government, and sought to reduce emissions by instituting a number of energy efficiency measures and incorporating sodium batteries. \r\n\r\nThe Miyagi Water Reclamation Center's ESS consists of a 2 MW NGK Insulators Ltd. NaS unit. The system provides load leveling and backup power.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1563,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.7597538,"longitude":139.7523704,"master\_project\_id":null,"name":"NGK NaS: Miyagi Water Reclamation Center","om\_contractor":"","organization":"d-umi@ngk.co.jp","owner\_1":"Bureau of Sewerage, The Tokyo Metropolitan Government","owner\_2":"","owner\_type":"3","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.eubusinessinjapan.eu/sites/default/files/energy\_storage\_landscape\_in\_japan.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Tokyo","status":"Operational","street\_address":"2-1-14 Miyagi","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T07:05:03Z","updated\_at\_by\_admin":"2014-11-07T21:45:15Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Tokyo Electric Power Company (TEPCO)","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Fuchu City","commissioning\_on":"2022-04-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"d-umi@ngk.co.jp","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2014-09-05T23:14:55Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Bureau of Sewerage, Tokyo Metropolitan Government launched an ambitious response to the Kyoto Protocol. The Bureau accounted for 45% of all the greenhouse gas emissions generated by the Tokyo Metropolitan Government, and sought to reduce emissions by instituting a number of energy efficiency measures and incorporating sodium batteries. \r\n\r\nThe Kita-Tama Ichigo Water Reclamation Center's ESS consists of a 1 MW NGK Insulators Ltd. NaS unit. The system provides load leveling and backup power.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1564,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.6564348,"longitude":139.508043,"master\_project\_id":null,"name":"NGK NaS: Kita-Tama Ichigo Water Reclamation Center","om\_contractor":"","organization":"","owner\_1":"Bureau of Sewerage, The Tokyo Metropolitan Government","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.gesui.metro.tokyo.jp/english/env\_guide/eg03.htm","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Tokyo","status":"Operational","street\_address":"6-6 Koyanagicho","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-09T05:05:59Z","updated\_at\_by\_admin":"2014-11-07T21:45:27Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Tokyo Electric Power Company (TEPCO)","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators Ltd.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Hitachinaka","commissioning\_on":"2022-07-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"d-umi@ngk.co.jp","contact\_info\_visible":false,"contact\_name":"d-umi","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2014-09-05T23:14:55Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Hitachi Automotive Systems Group's ESS consists of 4 x 2 MW NGK Insulators Ltd. NaS units. The system performs load leveling and backup power. When installed in 2003, this was one of the largest energy storage systems in the world. 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The Stem system has helped them lower their peak demand and drop their energy spend, all without changing their operations. Starting summer 2014, they will be receiving additional revenue for their energy storage system through Stem’s grid services program.","developer":"Stem","electronics\_provider":"Stem","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1566,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1566/stem.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1566/thumb\_stem.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1566/partner\_stem.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.598685,"longitude":-122.383478,"master\_project\_id":null,"name":"World Journal Stem PowerStore System","om\_contractor":"","organization":null,"owner\_1":"World Journal","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.stem.com/archives/8855","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":36,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"231 Adrian Road","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-03-16T18:20:57Z","updated\_at\_by\_admin":"2015-03-16T18:20:57Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Stem","zip":"94030"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Olivehurst","commissioning\_on":"2022-01-01","companion":"PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"Tad Glauthier, Stem","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-09-08T16:35:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"ShoEi Foods is one of the largest exporters of walnuts in the United States, operating on over 1,000 acres in California’s Central Valley. Stem partnered with solar developer, Cenergy Power, to implement a comprehensive energy optimization solution at Shoei’s plant in 2013. In order to qualify for lower future demand charges and maximize their solar investment, ShoEi has to operate below a specific power threshold in the year following installation.\r\n\r\nShoEi has been able to seamlessly monitor their energy usage in real-time using Stem’s sub-second energy data, receiving automatic alerts via email and text message when they approach the threshold. Even if the facility reaches the threshold in the future, Stem will provide an additional 72 kilowatts of intelligent energy storage to prevent exceeding it.","developer":"Stem, Cenergy Power","electronics\_provider":"Stem","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1567,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1567/stem.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1567/thumb\_stem.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1567/partner\_stem.png"}},"integrator\_company":"Stem","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":38.994791,"longitude":-121.577332,"master\_project\_id":null,"name":"ShoEi Foods Stem PowerStore System","om\_contractor":"","organization":null,"owner\_1":"ShoEi Foods","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.stem.com/archives/9269","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":72,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"1900 Feather River Blvd","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-07-15T19:36:21Z","updated\_at\_by\_admin":"2015-07-15T19:36:21Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"95961"}},{"project":{"announcement\_on":"2022-07-24","approval\_status":0,"city":"San Francisco","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"zoe@antennagroup.com","contact\_info\_visible":true,"contact\_name":"Zoe Fishman","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-09-08T17:09:43Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Stem, Inc. announced it has finalized an agreement to install and manage energy intelligence systems for its first Fortune 500 customer, Adobe. Stem will install its advanced energy storage and real-time data analytics solution in Adobe’s historic Baker and Hamilton Building in San Francisco, the oldest LEED platinum building in the world.\r\n\r\nThe system will automatically and rapidly respond to spikes in the building’s electricity use, drawing on previously stored power to reduce Adobe’s energy costs without impacting operations. Adobe will be able to take advantage of Stem’s utility capacity relief programs to help stabilize local grid operations during times of peak demand.","developer":"","electronics\_provider":"Stem","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1568,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Stem","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.7717908,"longitude":-122.4016701,"master\_project\_id":null,"name":"Adobe Baker and Hamilton Building Stem System","om\_contractor":"","organization":null,"owner\_1":"Adobe Systems","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.stem.com/archives/11115","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":162,"size\_kwh":1.11666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":7.0,"state":"California","status":"Contracted","street\_address":"700 7th Street","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-09-11T18:33:09Z","updated\_at\_by\_admin":"2014-09-11T18:32:31Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Stem","zip":""}},{"project":{"announcement\_on":"2022-06-25","approval\_status":0,"city":"Fontana","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"zoe@antennagroup.com","contact\_info\_visible":true,"contact\_name":"Zoe Fishman","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-09-08T17:20:11Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Through its Cox Conserves sustainability program, Cox Enterprises is utilizing an energy storage system at its Manheim Southern California auction location in Fontana, Calif. Stem's 18kW PowerStore system provides the location with real-time data analytics that are used to optimize efficiency and reduce electricity costs.\r\n\r\nCox is an early adopter of the Stem PowerStore system, which manages peak usage in Manheim Southern California's main facility. Stem's predictive software allows the building to use the most economical form of power available at any given moment, whether from the battery-based storage or from the grid.\r\n\r\nIn addition to the Stem PowerStore system, the Manheim Southern California location has implemented HVAC controls and reduced outdoor lighting wattage to conserve energy. Cox Enterprises also utilizes alternative energy in Southern California through fuel cells and solar projects at Cox Communications, the company's broadband communications and entertainment division.","developer":"","electronics\_provider":"Stem","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1569,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Stem","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.0596323,"longitude":-117.4726382,"master\_project\_id":null,"name":"Cox Enterprises Stem PowerStore System","om\_contractor":"","organization":null,"owner\_1":"Cox Enterprises","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.digitaljournal.com/pr/2014709","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":18,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"10700 Beech Ave","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-09-11T18:31:45Z","updated\_at\_by\_admin":"2014-09-11T18:31:45Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Stem","zip":"92337-7205"}},{"project":{"announcement\_on":"2022-03-13","approval\_status":0,"city":"Kalispell","commissioning\_on":"2022-03-13","companion":"","construction\_on":null,"contact\_city":"Columbia Falls","contact\_country":"United States","contact\_email":"media@zincairinc.com","contact\_info\_visible":true,"contact\_name":"","contact\_phone":"(406) 755-9462","contact\_state":"Montana","contact\_street\_address":"5314 US Hwy 2 West","contact\_zip":"59912","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-09-08T18:20:24Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"ViZn Energy Systems in cooperation with Flathead Electric Cooperative, announced the installation and integration of an advanced flow battery for grid storage manufactured by ViZn Energy. The project will provide insight to the benefits energy storage can provide to rural utilities and electric cooperatives in the rapidly changing power delivery market.\r\n\r\nViZn implements non-acid Zinc/Iron chemistry enabling manufacturing with inexpensive construction materials. The battery Stacks are molded construction with proprietary elements that have overcome the shunt issues historically afflicting flow batteries.\r\n\r\nViZn’s Z20 is a 80kw/160kwh system housed in a 20ft shipping container.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1570,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1570/vizn.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1570/thumb\_vizn.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1570/partner\_vizn.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.2359399,"longitude":-114.2762116,"master\_project\_id":null,"name":"Flathead Electric ViZn Z20","om\_contractor":"","organization":null,"owner\_1":"Flathead Electric Cooperative","owner\_2":"ViZn Energy Systems","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.viznenergy.com/news/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":80,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Montana","status":"Operational","street\_address":"2510 US Highway 2 East","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Iron Flow Battery","technology\_type\_l1":"Other","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-03-16T20:47:01Z","updated\_at\_by\_admin":"2015-03-16T20:47:01Z","updated\_by":null,"updated\_by\_email":null,"utility":"Flathead Electric Cooperative","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"ViZn Energy Systems","zip":"59901"}},{"project":{"announcement\_on":"2022-11-05","approval\_status":2,"city":"Frankenburg","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Austria","contact\_email":"office@bluesky-energy.eu","contact\_info\_visible":true,"contact\_name":"","contact\_phone":"+43 (0) 5335 500 88","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Austria","created\_at":"2014-09-08T18:34:53Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"BlueSky Energy, a research and manufacturing firm specializing in delivering large scale turnkey energy storage projects, incorporated ViZn Energy Systems, Inc.’s Z20 Zinc Redox Flow Batteries into one of its European economic renewal projects in late 2013. With the ViZn Z20 battery, BlueSky maximizes the solar reserves of a developing Austrian community by inexpensively cutting the waste that plagues traditional energy systems.","developer":"BlueSky Energy","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1571,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1571/blue.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1571/thumb\_blue.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1571/partner\_blue.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.0580501,"longitude":13.4801307,"master\_project\_id":null,"name":"BlueSky Energy Microgrid ViZn Z20","om\_contractor":"","organization":null,"owner\_1":"Confidential","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.viznenergy.com/bluesky-adds-vizn-batteries-to-its-austrian-microgrid/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":64,"size\_kwh":2.83333333333333,"size\_kwh\_hours":2,"size\_kwh\_minutes":50.0,"state":"Austria","status":"Operational","street\_address":"AlliedPanels Park 1","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Iron Flow Battery","technology\_type\_l1":"Other","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-09-15T21:36:45Z","updated\_at\_by\_admin":"2014-09-15T21:36:43Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"ViZn Energy Systems","zip":"4873 "}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Gaglione","commissioning\_on":"2022-11-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Italy","contact\_email":" selina.xerra@gruppoiren.it","contact\_info\_visible":true,"contact\_name":"Selina Xerra","contact\_phone":"+ 39 0521.1919910","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Astaldi Group","contractor\_2":"","contractor\_3":"","cost\_CAPEX":80000000.0,"cost\_OPEX":null,"country":"Italy","created\_at":"2014-09-14T23:18:08Z","created\_by\_id":282,"debt\_investor":"","decommissioning\_on":null,"desc":"The hydroelectric power plant of Pont Ventoux-Susa has \r\nan installed capacity of 158 MW and uses water from the \r\nriver Dora Riparia and its tributary Rio Clarea. Extending over 27 km, the plant has two reservoirs: Clarea Valley reservoir and Gorge della Dora reservoir. At night water is pumped from the Gorge reservoir to Clarea Valley at a max capacity of 13 m3/s.\r\n\r\nThe underground electric plant connecting the reservoirs utilizes two production units. The binary unit is comprised of a Francis turbine and generator, and the triple unit comprises of a Francis turbine, generator, and pump. \r\n\r\nThe plant connects to Terna's national transmission grid through a 2 km high-tension underground electricity line.","developer":"Iren Energia SpA (formerly AEM Torino)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1574,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1574/Pont-Ventoux2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1574/thumb\_Pont-Ventoux2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1574/partner\_Pont-Ventoux2.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":45.139117,"longitude":6.965528,"master\_project\_id":null,"name":"Pont Ventoux-Susa Hydroelectric Plant","om\_contractor":"","organization":null,"owner\_1":"Iren Energia SpA (formerly AEM Torino)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Average power output per year of over 350 GWh","primary\_reference":"http://www.irenenergia.it/ChiSiamo/Media/brochure/files/en/Iren\_Energia\_Pont\_Ventoux\_Susa\_UK.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":158000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Turin","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Open-loop Pumped Hydro Storage","technology\_type\_l1":"Open-loop Pumped Hydro Storage","technology\_type\_l2":"Open-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-09-15T22:53:36Z","updated\_at\_by\_admin":"2014-09-15T22:53:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"Iren Energia SpA","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-05-15","approval\_status":2,"city":"Blythe Township","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Pottsville","contact\_country":"United States","contact\_email":"peakhourpower@comcast.net","contact\_info\_visible":true,"contact\_name":"Paul DiRenzo, Jr.","contact\_phone":"570-617-7810","contact\_state":"PA","contact\_street\_address":"1389 Bunting Street","contact\_zip":"17901","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":300000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-09-15T14:41:52Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"300MW Closed-Loop Pumped Storage Scheme developed by and through the integration of Anthracite coal surface mining and reclamation and rockfill dam construction. The lower reservoir will be be created by what remains of a large coal surface mining. The upper reservoir's dam/dike will be constructed of the rock and earth by-product of surface mining (overburden). Recovery of +4million tons of Anthracite Coal will help subsidize project costs. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1575,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"","is\_sub\_project":null,"iso":"PJM","latitude":40.7564536,"longitude":-76.1283713,"master\_project\_id":null,"name":"Silver Creek Pumped Storage Project","om\_contractor":"","organization":null,"owner\_1":"Peak Hour Power, LLC","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://opportunityforblythe.com","primary\_reference1":null,"projected\_lifetime":"50.0","rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Electric Energy Time Shift","service\_use\_case\_5":"Electric Supply Capacity","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":300000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Pennsylvania","status":"Announced","street\_address":"Silver Creek Reservoir","systems\_integration":"","technology\_classification":"","technology\_type":"Closed-loop Pumped Hydro Storage","technology\_type\_l1":"Closed-loop Pumped Hydro Storage","technology\_type\_l2":"Closed-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2014-09-15T14:44:24Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":"17959"}},{"project":{"announcement\_on":"2022-09-18","approval\_status":1,"city":"Sarasota","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Sarasota","contact\_country":"United States","contact\_email":"Cecil.peel@sarasotacountyschools.net","contact\_info\_visible":false,"contact\_name":"Cecil Peel","contact\_phone":"941-915-7001 ","contact\_state":"FL","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-09-18T14:12:43Z","created\_by\_id":17,"debt\_investor":"","decommissioning\_on":null,"desc":"For over 20 years, the Sarasota County School District has benefitted from the use of CALMAC’s ice storage technology, and in 2013 alone, achieved over $2 million in energy cost savings.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1578,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1578/ice.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1578/thumb\_ice.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1578/partner\_ice.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":27.3364347,"longitude":-82.5306527,"master\_project\_id":null,"name":"Sarasota County School District","om\_contractor":"","organization":"","owner\_1":"Sarasota County","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.calmac.com/sarasota-county-school-district-achieves-20-mw","primary\_reference1":"http://www.calmac.com/energy-storage-case-study-sarasota-school-district","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":20000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Florida","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-26T04:59:57Z","updated\_at\_by\_admin":"2014-09-29T18:10:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"CALMAC","zip":""}},{"project":{"announcement\_on":"2022-09-22","approval\_status":1,"city":"Joliet","commissioning\_on":"2022-08-01","companion":"Grid","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"raheleh.folkerts@res-americas.com; john.chartier@prudential.com","contact\_info\_visible":false,"contact\_name":"Raheleh Folkerts; John Chartier","contact\_phone":"303-439-4200; 973-802-9829","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":20000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-09-23T14:21:33Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"RES Americas will develop and construct two 19.8 MW energy storage systems, each having the ability to store 7.8 MWh of energy. The first project, Elwood Energy Storage Center, will be located on Pilsen Road in West Chicago and the second project, Jake Energy Storage Center, will be located on Brandon Road in Joliet. Construction is expected to begin on both projects this winter with completion by August 2015. The projects are expected to operate for at least ten years. RES Americas acquired the projects during the development phase from Glidepath Power in September of 2014.\r\n\r\nThe projects will both provide real-time frequency regulation service to the PJM ancillary services market and are interconnected to the local Commonwealth Edison (ComEd) electric grid. The frequency regulation service balances the second to second variations in load and generation by absorbing excess energy during moments of over-generation and releasing energy during periods of under-generation to maintain power quality. Due to their very fast response time, battery projects are much more efficient at providing this service than conventional generators. This project efficiency allows PJM to deliver higher electrical quality, higher reliability, and lower cost to electricity consumers than traditional sources.\r\n\r\nThe battery storage modules for the projects will be supplied by BYD America. These batteries utilize lithium iron phosphate, an inherently safe variant of lithium battery chemistry. The project consist of eleven identical energy storage modular units, each of which will be a self-contained energy storage system containing thousands of individual battery cells, power conditioning equipment, safety and monitoring systems. The energy storage control and dispatch systems will be developed and provided by RES Americas. This modular approach will greatly improve system reliability and increase the simplicity of the projects' construction and operation.","developer":"Glidepath, RES Americas","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1579,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"RES Americas","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"PJM","latitude":41.4877384,"longitude":-88.0997601,"master\_project\_id":null,"name":"Jake Energy Storage Center: RES Americas","om\_contractor":"","organization":"","owner\_1":"Prudential Capital Group","owner\_2":"The Lincoln National Life Insurance Company","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.prnewswire.com/news-releases/res-announces-substantial-completion-and-project-financing-of-chicago-area-energy-storage-centers-300175915.html","primary\_reference1":"http://www.res-group.com/en/portfolio/?ProjectID=2063","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":19800,"size\_kwh":2.53333333333333,"size\_kwh\_hours":2,"size\_kwh\_minutes":32.0,"state":"Illinois","status":"Operational","street\_address":"Brandon Road","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-26T18:51:17Z","updated\_at\_by\_admin":"2016-05-25T20:07:56Z","updated\_by":null,"updated\_by\_email":null,"utility":"Commonwealth Edison","utility\_type":"Investor Owned","vendor\_company":"BYD America","zip":""}},{"project":{"announcement\_on":"2022-09-22","approval\_status":1,"city":"West Chicago","commissioning\_on":"2022-08-01","companion":"Grid","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"raheleh.folkerts@res-americas.com; john.chartier@prudential.com","contact\_info\_visible":false,"contact\_name":"Raheleh Folkerts; John Chartier","contact\_phone":"303-439-4200; 973-802-9829","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":20000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2014-09-23T14:21:34Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"RES Americas will develop and construct two 19.8 MW energy storage systems, each having the ability to store 7.8 MWh of energy. The first project, Elwood Energy Storage Center, will be located on Pilsen Road in West Chicago and the second project, Jake Energy Storage Center, will be located on Brandon Road in Joliet. Construction is expected to begin on both projects this winter with completion by August 2015. The projects are expected to operate for at least ten years. RES Americas acquired the projects during the development phase from Glidepath Power in September of 2014.\r\n\r\nThe project will provide real-time frequency regulation service to the PJM ancillary services market and is interconnected to the local Commonwealth Edison (ComEd) electric grid. The frequency regulation service balances the second to second variations in load and generation by absorbing excess energy during moments of over-generation and releasing energy during periods of under-generation to maintain power quality. Due to their very fast response time, battery projects are much more efficient at providing this service than conventional generators. This project efficiency allows PJM to deliver higher electrical quality, higher reliability, and lower cost to electricity consumers than traditional sources.\r\n\r\nThe battery storage modules for the project will be supplied by BYD America. These batteries utilize lithium iron phosphate, an inherently safe variant of lithium battery chemistry. The project consist of eleven identical energy storage modular units each of which will be a self-contained energy storage system containing thousands of individual battery cells, power conditioning equipment, safety and monitoring systems. The energy storage control and dispatch systems will be developed and provided by RES Americas. This modular approach will greatly improve system reliability and increase the simplicity of the project's construction and operation.","developer":"Glidepath, RES Americas","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1581,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"RES Americas","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"PJM","latitude":41.8978524,"longitude":-88.2230626,"master\_project\_id":null,"name":"Elwood Energy Storage Center: RES Americas","om\_contractor":"","organization":"","owner\_1":"Prudential Capital Group","owner\_2":"The Lincoln National Life Insurance Company","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.res-group.com/en/portfolio/?ProjectID=2062","primary\_reference1":"https://www.prnewswire.com/news-releases/res-announces-substantial-completion-and-project-financing-of-chicago-area-energy-storage-centers-300175915.html","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":19800,"size\_kwh":2.53333333333333,"size\_kwh\_hours":2,"size\_kwh\_minutes":32.0,"state":"Illinois","status":"Operational","street\_address":"Pilsen Road","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-26T18:48:50Z","updated\_at\_by\_admin":"2016-05-25T20:08:29Z","updated\_by":null,"updated\_by\_email":null,"utility":"Commonwealth Edison","utility\_type":"Investor Owned","vendor\_company":"BYD America","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Gyeongsan","commissioning\_on":"2022-10-01","companion":"","construction\_on":"2022-10-01","contact\_city":"San Diego","contact\_country":"United States","contact\_email":"kmcgrath@maxwell.com","contact\_info\_visible":false,"contact\_name":"Kim McGrath","contact\_phone":"858-503-3351","contact\_state":"California","contact\_street\_address":"3888 Calle Fortunada","contact\_zip":"92123","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2014-09-23T15:47:11Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Woojin Industrial Systems has completed installation of its energy storage system (ESS) ultracapacitor-based braking energy recuperation systems in seven Metro stations in Seoul, Daejon, Incheon and the Korea Train eXpress (KTX) high-speed rail depot in Seoul.\r\n\r\nBeginning with installation of demonstration systems in 2009 under a contract with the Korean federal government's Korean Railroad Research Institute (KRRI), Woojin and rail system operators have achieved grid power consumption savings of more than 20 percent and realized additional benefits in the form of system voltage stabilization that reduces power infrastructure requirements and helps to ensure uninterrupted operation. The recuperation systems, ranging from 750 to 1,500 volts, employ Maxwell ultracapacitors to absorb energy during rail vehicle braking and deliver the stored energy to the vehicles' electric motors for propulsion and to stabilize voltage throughout the system.\r\n\r\nEach installation employs up to 200 of Maxwell's 48-volt multi-cell ultracapacitor modules. Based on their positive experience to date, Woojin and rail system operators are planning several additional installations in 2014 and 2015.","developer":"Woojin Industrial Systems","electronics\_provider":"Woojin Industrial Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1582,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1582/48V.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1582/thumb\_48V.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1582/partner\_48V.png"}},"integrator\_company":"Woojin Industrial Systems","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":35.8250555,"longitude":128.7415441,"master\_project\_id":null,"name":"Woojin/Maxwell Gyeongsan Test Line","om\_contractor":"","organization":"Maxwell Technologies","owner\_1":"Korea Railroad Research Insitute","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.wjis.co.kr","primary\_reference1":"http://investors.maxwell.com/investors/news-and-events/press-releases/press-release-details/2014/Korean-Rail-Operators-Expand-Deployment-of-Maxwell-Technologies-Ultracapacitors-for-High-Efficiency-Braking-Energy-Recuperation-Systems/default.aspx","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transportation Services","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":525,"size\_kwh":0.0055,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.33,"state":"Gyeongsangbuk-do","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical Capacitor","technology\_type\_l1":"Electro-chemical Capacitor","technology\_type\_l2":"Electro-chemical Capacitor","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-24T16:56:20Z","updated\_at\_by\_admin":"2014-09-24T20:13:26Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Federally Owned","vendor\_company":"Maxwell Technologies","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Dong-gu","commissioning\_on":"2022-08-01","companion":"","construction\_on":"2022-08-01","contact\_city":"San Diego","contact\_country":"United States","contact\_email":"kmcgrath@maxwell.com","contact\_info\_visible":false,"contact\_name":"Kim McGrath","contact\_phone":"858-503-3351","contact\_state":"California","contact\_street\_address":"3889 Calle Fortunada","contact\_zip":"92123","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2014-09-23T15:49:12Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Woojin Industrial Systems has completed installation of its energy storage system (ESS) ultracapacitor-based braking energy recuperation systems in seven Metro stations in Seoul, Daejon, Incheon and the Korea Train eXpress (KTX) high-speed rail depot in Seoul.\r\n\r\nBeginning with installation of demonstration systems in 2009 under a contract with the Korean federal government's Korean Railroad Research Institute (KRRI), Woojin and rail system operators have achieved grid power consumption savings of more than 20 percent and realized additional benefits in the form of system voltage stabilization that reduces power infrastructure requirements and helps to ensure uninterrupted operation. 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Based on their positive experience to date, Woojin and rail system operators are planning several additional installations in 2014 and 2015.","developer":"Woojin Industrial Systems","electronics\_provider":"Woojin Industrial Systems","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1596,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1596/48V.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1596/thumb\_48V.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1596/partner\_48V.png"}},"integrator\_company":"Woojin Industrial Systems","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":37.476364,"longitude":126.616936,"master\_project\_id":"1592:1593:1594:1595:1596:1597","name":"Woojin/Maxwell Incheon Line 2 - Wanjeong Station (205)","om\_contractor":"","organization":null,"owner\_1":"Incheon Transit Corporation","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.wjis.co.kr","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Transportation Services","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":1200,"size\_kwh":0.0055,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.33,"state":"Incheon","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical Capacitor","technology\_type\_l1":"Electro-chemical Capacitor","technology\_type\_l2":"Electro-chemical Capacitor","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-09-24T20:10:20Z","updated\_at\_by\_admin":"2014-09-24T20:10:18Z","updated\_by":null,"updated\_by\_email":null,"utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Federally Owned","vendor\_company":"Maxwell Technologies","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Incheon","commissioning\_on":null,"companion":"","construction\_on":"2022-03-20","contact\_city":"San Diego","contact\_country":"United States","contact\_email":"kmcgrath@maxwell.com","contact\_info\_visible":false,"contact\_name":"Kim McGrath","contact\_phone":"858-503-3351","contact\_state":"California","contact\_street\_address":"3891 Calle Fortunada","contact\_zip":"92123","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2014-09-23T15:49:16Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Woojin Industrial Systems has completed installation of its energy storage system (ESS) ultracapacitor-based braking energy recuperation systems in seven Metro stations in Seoul, Daejon, Incheon and the Korea Train eXpress (KTX) high-speed rail depot in Seoul.\r\n\r\nBeginning with installation of demonstration systems in 2009 under a contract with the Korean federal government's Korean Railroad Research Institute (KRRI), Woojin and rail system operators have achieved grid power consumption savings of more than 20 percent and realized additional benefits in the form of system voltage stabilization that reduces power infrastructure requirements and helps to ensure uninterrupted operation. The recuperation systems, ranging from 750 to 1,500 volts, employ Maxwell ultracapacitors to absorb energy during rail vehicle braking and deliver the stored energy to the vehicles' electric motors for propulsion and to stabilize voltage throughout the system.\r\n\r\nEach installation employs up to 200 of Maxwell's 48-volt multi-cell ultracapacitor modules. Based on their positive experience to date, Woojin and rail system operators are planning several additional installations in 2014 and 2015.","developer":"Woojin Industrial Systems","electronics\_provider":"Woojin Industrial Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1597,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1597/48V.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1597/thumb\_48V.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1597/partner\_48V.png"}},"integrator\_company":"Woojin Industrial Systems","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":37.476364,"longitude":126.616936,"master\_project\_id":null,"name":"Woojin/Maxwell Incheon Line 2 - Depot S/S 2","om\_contractor":"","organization":"","owner\_1":"Incheon Transit Corporation","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.wjis.co.kr","primary\_reference1":"http://investors.maxwell.com/investors/news-and-events/press-releases/press-release-details/2014/Korean-Rail-Operators-Expand-Deployment-of-Maxwell-Technologies-Ultracapacitors-for-High-Efficiency-Braking-Energy-Recuperation-Systems/default.aspx","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transportation Services","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1200,"size\_kwh":0.0055,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.33,"state":"Incheon","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical Capacitor","technology\_type\_l1":"Electro-chemical Capacitor","technology\_type\_l2":"Electro-chemical Capacitor","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-24T02:11:13Z","updated\_at\_by\_admin":"2014-09-24T20:09:57Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Federally Owned","vendor\_company":"Maxwell Technologies","zip":""}},{"project":{"announcement\_on":"2022-07-11","approval\_status":2,"city":"Carros","commissioning\_on":"2022-09-15","companion":"Secondary Distribution","construction\_on":"2022-09-15","contact\_city":"Marseille","contact\_country":"France","contact\_email":"thomas.drizard@erdf-grdf.fr","contact\_info\_visible":false,"contact\_name":"Thomas Drizard","contact\_phone":"33663567230","contact\_state":"Région PACA","contact\_street\_address":"6 Allées Turcat Mery","contact\_zip":"13008","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":150000.0,"cost\_OPEX":null,"country":"France","created\_at":"2014-09-24T17:57:12Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The NICE GRID project brings together a broad range of stakeholders under the coordination of the French DSO ERDF, and is located in Carros, near Nice in the French Riviera. The goal is to develop a smart grid that effectively integrates a high proportion of solar panels, energy storage batteries and smart meters. The distribution grid within the city is managed by a Network Energy Manager (NEM) which identifies grid constraints on a day ahead basis and requests flexibilities to mitigate them. Grid batteries are one type of used flexibilities, and are managed by a Network Battery Agregator (NBA)\r\nThere will be two Low Voltage Grid Batteries (LVGB) connected to the low voltage grid at around 400 m of the corresponding secondary substation, in order to maximize the effect of the storage asset on the feeder voltage curve. These storage assets are integrated in a 10 feet container: the PCS and the battery modules are in the same container. These containers are located on a client field and a site owned by the municipality. \r\n","developer":"ERDF, SOCOMEC","electronics\_provider":"SOCOMEC","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"Federal/National","funding\_source\_3":"","funding\_source\_details\_1":"European Commission through FP7","funding\_source\_details\_2":"French Agency for Environment and Energy Management (ADEME)","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1598,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"SOCOMEC","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":43.788103,"longitude":7.2025345,"master\_project\_id":null,"name":"NICE GRID project in Carros (Southern France): Low Voltage Grid Batteries (LVGB)","om\_contractor":"SAFT, SOCOMEC, ERDF","organization":"","owner\_1":"ERDF","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://nicegrid.fr","primary\_reference1":"","projected\_lifetime":"2.0","rdd\_status":"Yes","research\_desc":"","research\_institution":"ARMINES University, EDF R&amp;D","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":33,"size\_kwh":2.56666666666667,"size\_kwh\_hours":2,"size\_kwh\_minutes":34.0,"state":"Provence-Alpes-Côte d'Azur","status":"Operational","street\_address":"Chemin de la Soite and Chemin de l'Emigra","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-17T20:36:25Z","updated\_at\_by\_admin":"2016-08-17T20:36:25Z","updated\_by":null,"updated\_by\_email":null,"utility":"Electricité Réseau Distribution France (ERDF)","utility\_type":"Public Owned","vendor\_company":"SAFT","zip":"06510"}},{"project":{"announcement\_on":"2022-07-11","approval\_status":1,"city":"Carros","commissioning\_on":"2022-09-16","companion":"Secondary Distribution","construction\_on":"2022-09-16","contact\_city":"Marseille","contact\_country":"France","contact\_email":"thomas.drizard@erdf-grdf.fr","contact\_info\_visible":false,"contact\_name":"Thomas Drizard","contact\_phone":"33663567231","contact\_state":"Région PACA","contact\_street\_address":"7 Allées Turcat Mery","contact\_zip":"13009","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":900000.0,"cost\_OPEX":null,"country":"France","created\_at":"2014-09-24T17:57:12Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The NICE GRID project brings together a broad range of stakeholders under the coordination of the French DSO ERDF, and is located in Carros, near Nice in the French Riviera. The goal is to develop a smart grid that effectively integrates a high proportion of solar panels, energy storage batteries and smart meters. The distribution grid within the city is managed by a Network Energy Manager (NEM) which identifies grid constraints on a day ahead basis and requests flexibilities to mitigate them. Grid batteries are one type of used flexibilities, and are managed by a Network Battery Agregator (NBA)\r\nThe Secondary Substation Battery (SSB) will be installed during autumn 2014 close to the secondary Substation of “Dock Trachel”. This secondary substation supplies a professional area of 12 clients, with around 250 kW of peak consumption, and 430 kWp of PV installed capacity. The PCS of this storage asset will be located in the secondary substation building, whereas the battery container will be located on the car park of a commercial client. This asset will have islanding capabilities. \r\n\r\n","developer":"ERDF, SOCOMEC","electronics\_provider":"SOCOMEC","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"Federal/National","funding\_source\_3":"","funding\_source\_details\_1":"European Commission through FP8","funding\_source\_details\_2":"French Agency for Environment and Energy Management (ADEME)","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1599,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"SOCOMEC, ERDF","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":43.792389,"longitude":7.18712,"master\_project\_id":null,"name":"NICE GRID project in Carros (Southern France): Secondary Substation Battery (SSB)","om\_contractor":"SAFT, SOCOMEC, ERDF","organization":"ERDF","owner\_1":"ERDF","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://nicegrid.fr","primary\_reference1":"","projected\_lifetime":"2.0","rdd\_status":"Yes","research\_desc":"","research\_institution":"ARMINES University, EDF R&amp;D","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":250,"size\_kwh":1.91666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":55.0,"state":"Provence-Alpes-Côte d'Azur","status":"Operational","street\_address":"1ere avenue, Industrial Area","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-29T07:23:22Z","updated\_at\_by\_admin":"2016-08-17T22:00:11Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Electricité Réseau Distribution France (ERDF)","utility\_type":"Public Owned","vendor\_company":"SAFT","zip":"06510"}},{"project":{"announcement\_on":"2022-07-01","approval\_status":1,"city":"Carros","commissioning\_on":"2022-07-01","companion":"","construction\_on":"2022-10-01","contact\_city":"Marseille","contact\_country":"France","contact\_email":"thomas.drizard@erdf-grdf.fr","contact\_info\_visible":false,"contact\_name":"Thomas Drizard","contact\_phone":"33663567232","contact\_state":"Région PACA","contact\_street\_address":"8 Allées Turcat Mery","contact\_zip":"13010","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":800000.0,"cost\_OPEX":null,"country":"France","created\_at":"2014-09-24T17:57:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The NICE GRID project brings together a broad range of stakeholders under the coordination of the French DSO ERDF, and is located in Carros, near Nice in the French Riviera. The goal is to develop a smart grid that effectively integrates a high proportion of solar panels, energy storage batteries and smart meters. The distribution grid within the city is managed by a Network Energy Manager (NEM) which identifies grid constraints on a day ahead basis and requests flexibilities to mitigate them. Grid batteries are one type of used flexibilities, and are managed by a Network Battery Agregator (NBA)\r\nThe Primary Substation Battery (PSB) was the first to be installed, in December 2013. It is located at the “Broc Carros” Primary Substation that supplies the area of Carros and represents around 20 MW of peak consumption. The site belongs to ERDF, and the storage asset is composed of three containers dedicated to the battery, the Power Converter System (PCS) and a transformer.\r\n","developer":"ERDF, ALSTOM GRID, SAFT","electronics\_provider":"ALSTOM GRID","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"Federal/National","funding\_source\_3":"","funding\_source\_details\_1":"European Commission through FP9","funding\_source\_details\_2":"French Agency for Environment and Energy Management (ADEME)","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1600,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"SAFT, ALSTOM GRID, ERDF","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":43.792389,"longitude":7.18712,"master\_project\_id":null,"name":"Carros NICE GRID Primary Substation Battery (PSB) Project","om\_contractor":"SAFT, ALSTOM GRID, ERDF","organization":"ERDF","owner\_1":"SAFT","owner\_2":"ALSTOM GRID","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":60.0,"ownership\_percentage\_2":40.0,"performance":"N/A","primary\_reference":"http://www.renewableenergyfocus.com/view/41910/nice-grid-smart-grid-project-uses-saft-energy-storage-with-solar-power-in-south-of-france/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"ARMINES University, EDF R&amp;D","research\_institution\_link":"","service\_use\_case\_1":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1100,"size\_kwh":0.516666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":31.0,"state":"Provence-Alpes-Côte d'Azur","status":"Operational","street\_address":"Industrial Area","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:17:38Z","updated\_at\_by\_admin":"2016-08-17T22:03:57Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Electricité Réseau Distribution France (ERDF)","utility\_type":"Public Owned","vendor\_company":"SAFT","zip":"06510"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Dongguan","commissioning\_on":null,"companion":"","construction\_on":"2021-12-10","contact\_city":"","contact\_country":"","contact\_email":"Chenyaj@catlbattery.com","contact\_info\_visible":true,"contact\_name":"Jack Chen","contact\_phone":"+86-(0)593-258 2432","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-09-29T07:35:22Z","created\_by\_id":286,"debt\_investor":"","decommissioning\_on":null,"desc":"ATL 1MW / 2MWh mobile ESS was developed for power stations, substations, industrial, mining enterprises and so on. It performs load shifting, smooths the grid, energy saving, and backup power supply. The system's design life is 10 years.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1602,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1602/1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1602/thumb\_1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1602/partner\_1.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":23.020536,"longitude":113.751765,"master\_project\_id":null,"name":"Dongguan SSL 1 MW/2 MWh ESS","om\_contractor":"","organization":"","owner\_1":"Amperex Technology Limited","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.catlbattery.com","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Guandong","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-09T03:12:11Z","updated\_at\_by\_admin":"2014-11-07T19:47:11Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Taiwan","commissioning\_on":null,"companion":"","construction\_on":"2022-10-10","contact\_city":"","contact\_country":"","contact\_email":"Chenyaj@catlbattery.com","contact\_info\_visible":true,"contact\_name":"Jack Chen","contact\_phone":"+86-(0)593-258 2432","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-09-29T07:51:19Z","created\_by\_id":286,"debt\_investor":"","decommissioning\_on":null,"desc":"This system is mainly constructed by the lithium iron phosphate battery heap, bi-directional converter (configured with transformer), monitoring and control systems, and the network switchgear cabinet. The system is integrated in a standard 20-foot container. The main functions of the ESS system include: \r\n- Steady grid voltage \r\n- Improve power supply quality\r\n- Operate islanded or grid-connected.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1603,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1603/2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1603/thumb\_2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1603/partner\_2.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":23.69781,"longitude":120.960515,"master\_project\_id":null,"name":"TOA 100 kW/250 kWh ESS","om\_contractor":"","organization":"CATL Battery","owner\_1":"TOA","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.catlbattery.com","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":2.5,"size\_kwh\_hours":2,"size\_kwh\_minutes":30.0,"state":"Taiwan","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-25T06:59:02Z","updated\_at\_by\_admin":"2014-11-07T19:47:31Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Ningde","commissioning\_on":null,"companion":"","construction\_on":"2022-08-11","contact\_city":"","contact\_country":"","contact\_email":"Chenyaj@catlbattery.com","contact\_info\_visible":true,"contact\_name":"Jack Chen","contact\_phone":"+86-(0)593-258 2432","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-09-29T08:06:37Z","created\_by\_id":286,"debt\_investor":"","decommissioning\_on":null,"desc":"ND 1 MW/2 MWh mobile ESS was developed for power plant (station), substations, industrial , mining enterprises and so on. It performs load shifting, grid smoothing, energy saving, and back up power supply. The system's design life is 10 years.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1604,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1604/3.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1604/thumb\_3.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1604/partner\_3.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":26.665617,"longitude":119.547933,"master\_project\_id":null,"name":"Ningde 1 MW/2 MWh ESS","om\_contractor":"","organization":"","owner\_1":"Contemporary Amperex Technology 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experiment.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1606,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1606/5.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1606/thumb\_5.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1606/partner\_5.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.158557,"longitude":114.720086,"master\_project\_id":null,"name":"China Electric Power Research Institute Zhangbei 2.6 MWh ESS","om\_contractor":"","organization":"CATL Battery","owner\_1":"China Electric Power Research 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Mainly used for optical energy experiments. 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The ESS stabilizes the grid voltage, improves power supply quality, and can operate islanded or grid-connected.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1608,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":26.074508,"longitude":119.296494,"master\_project\_id":null,"name":"Fujian Electric Institute 125 kW/250 kWh ESS","om\_contractor":"","organization":"CATL Battery","owner\_1":"Fujian Electric Institute","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.catlbattery.com","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":125,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Fujian","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-17T06:48:21Z","updated\_at\_by\_admin":"2014-11-07T19:48:57Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Taiwan","commissioning\_on":null,"companion":"","construction\_on":"2022-06-12","contact\_city":"","contact\_country":"","contact\_email":"ChenYaJ@catlbattery.com","contact\_info\_visible":true,"contact\_name":"Jack Chen","contact\_phone":"+86-(0)593-258 2432","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-09-30T05:20:27Z","created\_by\_id":286,"debt\_investor":"","decommissioning\_on":null,"desc":"This system is mainly constructed by the lithium iron phosphate battery heap, bi-directional converter (configured with transformer), monitoring and control systems, and the network switchgear cabinet. The system is integrated in a standard 20-foot container. The main functions of the ESS system include (but are not limited to): \r\n- Steady the grid voltage \r\n- Improve power supply quality \r\n- Operate islanded or grid-connected.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1611,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1611/8.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1611/thumb\_8.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1611/partner\_8.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":23.69781,"longitude":120.960515,"master\_project\_id":null,"name":"TOA 125 kW/250 kWh ESS","om\_contractor":"","organization":"CATL Battery","owner\_1":"TOA","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.catlbattery.com","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":125,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Taiwan","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-17T07:02:04Z","updated\_at\_by\_admin":"2014-11-07T19:49:35Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Taiwan","commissioning\_on":null,"companion":"","construction\_on":"2022-06-12","contact\_city":"","contact\_country":"","contact\_email":"ChenYaJ@catlbattery.com","contact\_info\_visible":true,"contact\_name":"Jack Chen","contact\_phone":"+86-(0)593-258 2432","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-09-30T05:31:43Z","created\_by\_id":286,"debt\_investor":"","decommissioning\_on":null,"desc":"This system is mainly constructed by the lithium iron phosphate battery heap, bi-directional converter (configured with transformer), monitoring and control systems, and the network switchgear cabinet. The system is integrated in a standard 40-foot container. The main functions of the ESS system include: \r\n- Steady the grid voltage \r\n- Improve power supply quality \r\n- Operate either islanded grid-connected.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1612,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1612/9.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1612/thumb\_9.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1612/partner\_9.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":23.69781,"longitude":120.960515,"master\_project\_id":null,"name":"TOA 250 kW/500 kWh ESS ","om\_contractor":"","organization":"CATL Battery","owner\_1":"TOA","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.catlbattery.com","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Taiwan","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-29T03:06:23Z","updated\_at\_by\_admin":"2014-11-07T19:49:53Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Taiwan","commissioning\_on":null,"companion":"","construction\_on":"2022-06-12","contact\_city":"","contact\_country":"","contact\_email":"ChenYaJ@catlbattery.com","contact\_info\_visible":true,"contact\_name":"Jack Chen","contact\_phone":"+86-(0)593-258 2432","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-09-30T05:44:15Z","created\_by\_id":286,"debt\_investor":"","decommissioning\_on":null,"desc":"This system is mainly constructed by the lithium iron phosphate battery heap, bi-directional converter (configured with transformer), monitoring and control systems, and the network switchgear cabinet. The system is integrated in a standard 40-foot container. The main functions of the ESS system include (but is not limited to): \r\n- Steady the grid voltage\r\n- Improve power supply quality \r\n- Operate isolated from the grid or grid-connected","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1613,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":23.69781,"longitude":120.960515,"master\_project\_id":null,"name":"TOA 250 kW/750 kWh ESS ","om\_contractor":"","organization":"CATL Battery","owner\_1":"TOA","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.catlbattery.com","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Taiwan","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-29T03:04:07Z","updated\_at\_by\_admin":"2014-11-07T19:50:11Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Fuzhou","commissioning\_on":null,"companion":"","construction\_on":"2022-09-01","contact\_city":"","contact\_country":"","contact\_email":"ChenYaJ@catlbattery.com","contact\_info\_visible":true,"contact\_name":"Jack Chen","contact\_phone":"+86-(0)593-258 2432","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-09-30T06:07:14Z","created\_by\_id":286,"debt\_investor":"","decommissioning\_on":null,"desc":"This is China's first island ESS project which connects to the 10 KV distribution network directly. The ESS provides stable voltage to the electrical grid nodes, improves the operational efficiency of the distribution transformers, and enhances the ability of new distributed generation sources to access the electrical grid.","developer":"Contemporary Amperex Technology Limited","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1614,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1614/11.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1614/thumb\_11.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1614/partner\_11.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":26.074508,"longitude":119.296494,"master\_project\_id":null,"name":"FuJian MeiZhou Island 1 MW/2 MWh ESS - Contemporary Amperex Technology Limited","om\_contractor":"","organization":"","owner\_1":"Fujian Electric Institute","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.catlbattery.com","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Fujian","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-08T07:05:07Z","updated\_at\_by\_admin":"2014-11-07T19:50:46Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Contemporary Amperex Technology Limited","zip":""}},{"project":{"announcement\_on":"2022-09-30","approval\_status":1,"city":"Zhoushan","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ChenYaJ@catlbattery.com","contact\_info\_visible":true,"contact\_name":"Jack Chen","contact\_phone":"+86-(0)593-258 2432","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-09-30T06:15:49Z","created\_by\_id":286,"debt\_investor":"","decommissioning\_on":null,"desc":"This ESS system is a demonstration power station on the island, which used ocean current energy, wind energy and solar energy as the power.","developer":"Amperex Technology Limited (ATL)","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1615,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":29.985295,"longitude":122.207216,"master\_project\_id":null,"name":"ZheJiang 250 kW/250 kWh ESS - 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PV 60 kWp","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"matthias.glatz@de.bosch.com; thilo.resenhoeft@bosch.com","contact\_info\_visible":false,"contact\_name":"Matthias Glatz; Thilo Resenhoeft","contact\_phone":"; +49 711 811-7088","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-10-13T16:01:24Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Bosch is supplying a flexible energy storage system for a housing complex that is currently under construction there, which comprises 180 townhouses. The system has an installed capacity of 135 kilowatt-hours. \r\n\r\nThe Bosch turnkey energy storage system makes use of lithium-ion technology. The storage unit is some seven meters wide, about 60 centimeters deep, and 1.8 meters high. It is located in a machine room on site. Its capacity and electronics are precisely aligned to the needs of the complex's power grid.\r\n\r\nThe storage system has an output of 50 kilowatts and can be charged or discharged within two hours. Thanks to its inverter, power can be fed into and drawn from the customer network.\r\n\r\nRead more: http://goo.gl/LWX3Lb","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Hessian Ministry of Economics, Energy, Transport and Regional Development with funding from the European Regional Development Fund","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1616,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1616/1-RB-19905-e.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1616/thumb\_1-RB-19905-e.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1616/partner\_1-RB-19905-e.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":50.0597078,"longitude":8.5297786,"master\_project\_id":null,"name":"Süwag - Bosch Community ESS","om\_contractor":"","organization":null,"owner\_1":"Süwag Erneuerbare Energien GmbH","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.bosch-presse.de/presseforum/details.htm?locale=en&txtID=6641","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":50,"size\_kwh":2.7,"size\_kwh\_hours":2,"size\_kwh\_minutes":42.0,"state":"Hessen","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-17T16:52:39Z","updated\_at\_by\_admin":"2016-03-17T16:52:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Bosch","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Berlin","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Germany","contact\_email":"Hiersemenzel@younicos.com","contact\_info\_visible":false,"contact\_name":"Philip Hiersemenzel","contact\_phone":"+49-174-9088189","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Younicos","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-10-14T16:35:39Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In a joint pilot project, Younicos and Vattenfall have commissioned the first large-scale battery to be integrated in the European electricity balancing market. Since the end of 2012, a 1 megawatt sodium-sulfur battery based at the Younicos headquarters in Berlin-Adlershof successfully balances short-term fluctuations in the power grid. This is the first time a battery is employed in maintaining the mains power frequency of the transmission system operator 50 Hertz Transmission GmbH.\r\n\r\nThe hybrid battery consists of a 1 MW/6 MWh sodium sulfur unit and 200 kW/200 kWh lithium-ion unit.\r\n","developer":"Younicos","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Equity","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Younicos","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1617,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1617/Vattenfall.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1617/thumb\_Vattenfall.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1617/partner\_Vattenfall.png"}},"integrator\_company":"Younicos","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":52.42726,"longitude":13.545284,"master\_project\_id":null,"name":"Younicos and Vattenfall Project: Lithium Ion","om\_contractor":"All Parties","organization":"Younicos","owner\_1":"Younicos","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.younicos.com/en/projects/02\_vattenfall/","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":200,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Berlin","status":"Operational","street\_address":"Am Studio 16","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-04T06:55:30Z","updated\_at\_by\_admin":"2016-05-17T00:16:08Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Vattenfall","utility\_type":"Federally Owned","vendor\_company":"Samsung SDI","zip":"12489"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Madrid","commissioning\_on":"2022-01-15","companion":"","construction\_on":"2022-09-15","contact\_city":"Mairena del Aljarafe","contact\_country":"Spain","contact\_email":"rgonzalez@wininertia.es; cgarcia@wininertia.es","contact\_info\_visible":true,"contact\_name":"Rafael Gonzalez; Constantino Sanchez","contact\_phone":"+34 954 173 085","contact\_state":"Seville","contact\_street\_address":"Calle Innovación 6-8, Edificio Ariete, Poligono PISA","contact\_zip":"41927","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":790962.0,"cost\_OPEX":12.5,"country":"Spain","created\_at":"2014-10-16T18:40:04Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The recuperation system employs Win Inertia's SHAD® hybrid control technology (international patent pending) to integrate batteries and Maxwell ultracapacitors to increase energy recovery efficiency and reduce stress on the batteries, thereby extending battery life. Ultracapacitors' rapid charge/discharge characteristics uniquely enable them to capture and store more energy during each braking event than battery-based systems, which have limited ability to absorb energy in the few seconds required to stop a vehicle. Win Inertia's high-efficiency hybrid energy storage and power delivery system furthers ADIF's return on investment as it enables dual use of the recuperated energy for rail vehicle propulsion and EV charging. By converting kinetic energy into stored electric energy through regenerative braking, the system recovers 8 to 10 percent of the total energy used by the railway system, which is then used to power the EV charging station.","developer":"Win Inertia","electronics\_provider":"Win Inertia","energy\_management\_software\_provider":"","funding\_amount\_1":790962.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"INNPACTO program (Spain)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1618,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1618/WinInertia.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1618/thumb\_WinInertia.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1618/partner\_WinInertia.JPG"}},"integrator\_company":"Win Inertia","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":40.37563,"longitude":-3.679729,"master\_project\_id":null,"name":"Ferrolinera WESS: Li-Ion Batteries - Win Inertia ","om\_contractor":"","organization":" Win Inertia; Win Inertia","owner\_1":"Administrator of Railway Infrastructures (ADIF)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://wininertia.es/projects/ferrolinera/","primary\_reference1":"","projected\_lifetime":"12.0","rdd\_status":"Yes","research\_desc":"Electronic Technology Group","research\_institution":"University of Seville (Spain)","research\_institution\_link":"http://iecon02.us.es/","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_5":"Transportation Services","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":300,"size\_kwh":0.233333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":14.0,"state":"Madrid","status":"Operational","street\_address":"Avenida Santa Catalina s/n (Adif Cerro negro facility)","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-07T06:08:37Z","updated\_at\_by\_admin":"2016-05-17T00:34:35Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Cerro Negro energy laboratory (ADIF)","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Kokam","zip":"28053"}},{"project":{"announcement\_on":"2022-12-04","approval\_status":1,"city":"Boothbay","commissioning\_on":"2022-04-04","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"dblais@gridsolar.com","contact\_info\_visible":false,"contact\_name":"Dan Blais","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-10-21T15:16:10Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"GridSolar has contracted Ice Energy to implement 29 Ice Bear units of varying capacity and output to perform peak shaving services. They will run during the day to offset load and charge overnight.","developer":"Ice Energy","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1619,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":43.8929812,"longitude":-69.6298971,"master\_project\_id":null,"name":"GridSolar Boothbay Pilot Project: Thermal Storage (Peak Shaving) - Ice Energy","om\_contractor":"Ice Energy","organization":"GridSolar","owner\_1":"Ice Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"43,715 kWh","primary\_reference":"http://www.gridsolar.com/BoothbayProject.html","primary\_reference1":"https://www.ice-energy.com/ice-energy-deliver-250-kw-electric-capacity-central-maine-power-company/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"Transmission Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":221,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Maine","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-08T23:30:06Z","updated\_at\_by\_admin":"2014-10-21T15:21:57Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Central Maine Power","utility\_type":"Investor Owned","vendor\_company":"Ice Energy","zip":"04537"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Boothbay","commissioning\_on":"2022-06-09","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"dblais@gridsolar.com","contact\_info\_visible":false,"contact\_name":"Dan Blais","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-10-21T15:16:11Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"GridSolar has contracted Ice Energy to implement 5 Ice Bear units of varying capacity and output to use as active demand response resources to displace load.","developer":"Ice Energy","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1620,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":43.8762865,"longitude":-69.6337364,"master\_project\_id":null,"name":"GridSolar Boothbay Pilot Project: Thermal Storage (Demand Response) - Ice Energy","om\_contractor":"Ice Energy","organization":"GridSolar","owner\_1":"Ice Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"70 kWh","primary\_reference":"http://www.gridsolar.com/BoothbayProject.html","primary\_reference1":"https://www.ice-energy.com/ice-energy-deliver-250-kw-electric-capacity-central-maine-power-company/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"Transmission Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":29,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Maine","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-03T08:35:36Z","updated\_at\_by\_admin":"2014-10-21T15:18:37Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Central Maine Power","utility\_type":"Investor Owned","vendor\_company":"Ice Energy","zip":""}},{"project":{"announcement\_on":"2022-10-20","approval\_status":1,"city":"Chicago","commissioning\_on":"2022-10-20","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"monica.mackay@edelman.com // jay@intelgen.com","contact\_info\_visible":false,"contact\_name":"Monica MacKay // Jay Marhoefer","contact\_phone":"312-233-1317 // 312-860-1777","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-10-22T17:42:59Z","created\_by\_id":282,"debt\_investor":"","decommissioning\_on":null,"desc":"S&C Electric Company deployed six 25 kW PureWave Community Energy Storage (CES) systems at its global headquarters in Chicago. The 150 kW energy storage system provides fast frequency response regulation for the PJM wholesale market. S&C is selling its CES stored electricity to PJM through Intelligent Generation.","developer":"","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1621,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Intelligent Generation, LLC","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":41.8781136,"longitude":-87.6297982,"master\_project\_id":null,"name":"S&C CES: Chicago/PJM Frequency Regulation","om\_contractor":"","organization":"Edelman Chicago // Intelligent Generation, LLC","owner\_1":"S&C Electric Company","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.prnewswire.com/news-releases/sc-energy-storage-system-to-provide-grid-support-for-pjm-279766482.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":150,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Illinois","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-12T02:34:48Z","updated\_at\_by\_admin":"2015-03-16T19:07:10Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"S&C Electric Company","zip":""}},{"project":{"announcement\_on":"2022-08-19","approval\_status":1,"city":"Jinzhou","commissioning\_on":null,"companion":"99 MW Wind","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"minli.zhang@bolongholding.com","contact\_info\_visible":false,"contact\_name":"Minli Zhang","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Rongke Power","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-10-27T16:46:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"At the end of 2013, Huadian Tianren won the bid of 7 MW/14 MWh energy storage projects of Beizhen wind farm together with Rongxin power electronics and other partners. In April 2014, Rongke Power signed the contract with Rongxin to supply a 2 MW/4 MWh vanadium energy storage system (ESS).The system is used for power generation tracking, wind power output smoothing, frequency regulating and voltage supporting, thus the comprehensive utilization rate of wind power generation integrated in power grid will be improved.\r\n The 2 MW/4 MWh vanadium ESS is composed of 4 sets of 500 kW subsystems. Each subsystem contains two standard containers using cell stacks with rated power of 31.5 kW. This containerized system design maximizes on-site construction efficiency and meanwhile minimizes the installation space. The vanadium ESS includes real-time SOC monitoring, deep charge/discharge, and a long life-cycle, all while effectively smoothing wind power output and reducing the impact of intermittent wind output to electric grids. At the same time, through smart control aligned with wind power forecast, the vanadium ESS can improve power generation tracking and increase renewable energy utilization.","developer":"Huadian Tianren","electronics\_provider":"Rongxin","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1622,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.05046,"longitude":121.782769,"master\_project\_id":null,"name":"Guodian Hefeng Beizhen Wind Farm: VFB","om\_contractor":"","organization":"","owner\_1":"Liaoning Electricity Economy Development Co., Ltd.","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.rongkepower.com/index.php/article/show/id/183/language/en","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Voltage 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Power","zip":""}},{"project":{"announcement\_on":"2022-10-27","approval\_status":1,"city":"Shenyang","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"minli.zhang@bolongholding.com","contact\_info\_visible":false,"contact\_name":"Minli Zhang","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-10-27T16:46:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"PV Storage in 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Institute","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.rongkepower.com/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Liaoning","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-25T07:39:20Z","updated\_at\_by\_admin":"2014-10-28T14:03:22Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Rongke Power","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Shenyang","commissioning\_on":"2022-03-15","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"minli.zhang@bolongholding.com","contact\_info\_visible":false,"contact\_name":"Minli Zhang","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Rongke Power","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-10-27T16:46:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"On March 15, 2022 Faku wind power farm 5MW/10MWh energy storage system (ESS), built by Dalian Rongke Energy Storage Technology Development Co., Ltd. (referred to as Rongke Power) connected successfully to the grid of Liaoning Liaoning Power Grid.\r\n\r\nThe system implementation began in August 2012. The system will be equipped with Longyuan Power's 50-MW Bewini wind farm to track the planned power generation and smooth the wind power output, thereby enhancing the ability of wind power to connect to the grid. In addition, it will also play an active role in transient wind power emergency response and transient voltage emergency support in the grid-connected operation of wind power to ensure that the overall operation of the power grid is safer and more reliable.\r\n \r\nThe station is located in Shenyang, Liaoning Province. It is supporting 10% of the 50MW power plant. Rongke power takes charge of design, manufacture, installation and debugging of the project.\r\n\r\nThe wind farm project covers an area of ​​about 16 square kilometers with a total investment of 450 million yuan and a scale of 50 MW wind power with a 5 MW / 10 MW full vanadium flow battery energy storage system. The demonstration project highlights technological innovation and economic rationality.","developer":"Rongke Power, Anshan Rongxin","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1624,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1624/58b517ff23c2b.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1624/thumb\_58b517ff23c2b.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1624/partner\_58b517ff23c2b.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.805865,"longitude":123.432253,"master\_project\_id":null,"name":"Guodian Longyuan Wind Farm VFB - Rongke Power & Anshan Rongxin","om\_contractor":"","organization":"","owner\_1":"Guodian Longyuan (Shenyang) Wind Power Co., Ltd. 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Power","zip":""}},{"project":{"announcement\_on":"2022-10-27","approval\_status":1,"city":"Beijing","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"minli.zhang@bolongholding.com","contact\_info\_visible":false,"contact\_name":"Minli Zhang","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2014-10-27T16:46:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Energy Storage in 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Intelligent smart meter calculates best dispatch strategy of stored energy.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1629,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1629/BI\_Cellcube\_.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1629/thumb\_BI\_Cellcube\_.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1629/partner\_BI\_Cellcube\_.png"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":52.0302285,"longitude":8.5324708,"master\_project\_id":null,"name":"DMG Gildemeister CellCube Industrial Smart Grid","om\_contractor":"","organization":"DMG MORI 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Solutions","zip":""}},{"project":{"announcement\_on":"2022-11-07","approval\_status":2,"city":"Muswellbrook","commissioning\_on":"2022-11-07","companion":"PV","construction\_on":"2022-10-01","contact\_city":"Sydney","contact\_country":"Australia","contact\_email":"info.aus@photonenergy.com","contact\_info\_visible":true,"contact\_name":"Photon Energy","contact\_phone":"+61 2 80213383","contact\_state":"NSW","contact\_street\_address":"55 Grafton Street","contact\_zip":"NSW 2022","contractor\_1":"Photon Energy","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2014-11-05T23:33:49Z","created\_by\_id":298,"debt\_investor":"","decommissioning\_on":null,"desc":"Photon Energy Australia has taken a broadcast antenna off the grid with a solar storage system.\r\nThe 39 kWp solar array produces energy to power 216 kWh of solar batteries, which provide the two broadcast antennas in Muswellbrook, Australia, with solar energy 24/7. \r\nThis project was partly funded by the German Energy Agency (dena) and built using mainly components Made in Germany.\r\nThe solar panels are installed at a slightly higher angle to maximise yield in the winter months. \r\nThe batteries are housed in a tempered technology container.","developer":"Photon Energy","electronics\_provider":"SMA, Photon 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Landing Circle, Suite 155","contact\_zip":"94939","contractor\_1":"SolarCity","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-11-07T17:08:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Burton School District, in California's San Joaquin Valley, will house combined solar and energy storage systems from SolarCity. The district will install solar and DemandLogic™, SolarCity's smart energy storage system for businesses, to generate and store its own clean, renewable electricity at eight schools. DemandLogic will allow the district schools to reduce energy costs by using stored electricity to lower peak demand. \r\n\r\nSolarCity will install the district's solar systems and advanced battery technology at eight elementary and middle schools, as well as additional solar generation at a district office. The solar installations will total more than 1.4 megawatts of clean power capacity, with storage providing an additional 360 kilowatts (720 kilowatt hours) of power to reduce peak demand. The new solar systems are expected to save the district more than $1 million dollars over the life of the contracts, and the DemandLogic battery storage systems could save thousands more on demand charges each year. \r\n\r\nBurton School District retained TerraVerde Renewable Partners, an independent energy advisor, to assess and scope an optimal energy cost savings program, analyze financing options, organize the RFP process and help the district select the best candidate to meet the program's specifications. \r\n\r\nThe new SolarCity systems are expected to generate 2.3 million kilowatt hours of solar energy annually, and enough over the life of the contract to power more than 4,000 homes for a year. The solar systems will also help avoid more than 43 million pounds of carbon dioxide from entering the atmosphere and save more than 203 million gallons of water\*, an especially important environmental benefit in the drought-stricken valley. The entire storage project is expected to be complete by May 2015. ","developer":"Terra Verde Renewable Partners","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"CA Proposition 39","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1631,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1631/Roof\_solar.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1631/thumb\_Roof\_solar.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1631/partner\_Roof\_solar.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":36.06523,"longitude":-119.0167679,"master\_project\_id":"","name":"Terra Verde/SolarCity - Burton School District Energy Storage & PV Project","om\_contractor":"","organization":null,"owner\_1":"Burton School District","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.solarcity.com/newsroom/press/solarcity-and-burton-school-district-announce-solar-energy-storage-project-eight","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":360,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-11-08T00:56:13Z","updated\_at\_by\_admin":"2014-11-08T00:56:13Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"SolarCity","zip":"93257"}},{"project":{"announcement\_on":"2022-11-11","approval\_status":1,"city":"Long Beach","commissioning\_on":null,"companion":"Alamitos Power Center","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"timothy.effio@aes.com; amy.ackerman@aes.com; brian.perusse@aes.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-11-12T15:05:32Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"AES Southland announced that it has been awarded a 20-year Power Purchase Agreement (PPA) by Southern California Edison (SCE), to provide 100 MW of interconnected battery-based energy storage, a 200 MW flexible power resource. This new capacity can deliver 400 MWh of energy and will be built south of Los Angeles at the Alamitos Power Center in Long Beach, California. ","developer":"AES Energy Storage","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1632,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1632/AES\_alamitos.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1632/thumb\_AES\_alamitos.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1632/partner\_AES\_alamitos.JPG"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.7700504,"longitude":-118.1937395,"master\_project\_id":null,"name":"AES Alamitos Energy Storage Array","om\_contractor":"","organization":"","owner\_1":"AES Southland","owner\_2":"","owner\_type":"","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"http://www.renewaesalamitos.com/AES-Alamitos-Fact-Sheet-2015.pdf","primary\_reference":"http://www.aesenergystorage.com/2014/11/05/aes-help-sce-meet-local-power-reliability-20-year-power-purchase-agreement-energy-storage-california-new-facility-will-provide-100-mw-interconnected-storage-equivalent-200-mw/?utm\_source=Energy+Storage+Report&utm\_campaign=859e0b3526-ESR\_2\_10\_1210\_2\_2012&utm\_medium=email&utm\_term=0\_bd57f7e9aa-859e0b3526-80843329","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Under Construction","street\_address":"Alamitos Power Center","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-11T23:59:27Z","updated\_at\_by\_admin":"2018-01-11T15:42:00Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"AES Energy Storage","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Berlin","commissioning\_on":"2022-08-31","companion":"30 kW Sodium Ion Energy Storage, 200 kW Diesel generator, 100 kW Solar and wind feed-in simulator, 100 kW Load profile simulator, Energy management system and site controller","construction\_on":"2022-07-30","contact\_city":"","contact\_country":"","contact\_email":"bismarck@qinous.com","contact\_info\_visible":true,"contact\_name":"Busso v. Bismarck","contact\_phone":"+49530233111","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-11-17T12:27:29Z","created\_by\_id":305,"debt\_investor":"","decommissioning\_on":null,"desc":"The QINOUS test facility in Berlin showcases the functionality and performance of our energy storage solutions in on-grid and off-grid scenarios.\r\n\r\nThe microgrid includes a 100 kW / 112 kWh QINOUS ESS with lithium-ion batteries, a 30 kW / 80 kWh QINOUS ESS with aqueous-hybrid-ion batteries, a 150 kW diesel generator with multiple controllers (Deif, DSE, etc), a 100 kW solar and wind feed-in simulator, a 100 kW Load profile simulator, and an energy management system and site controller.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1633,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1633/Qinous\_Demonstartor\_bearbeitet-02-RGB.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1633/thumb\_Qinous\_Demonstartor\_bearbeitet-02-RGB.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1633/partner\_Qinous\_Demonstartor\_bearbeitet-02-RGB.jpg"}},"integrator\_company":"","integrator\_fax":"","is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":52.4577228,"longitude":13.5261362,"master\_project\_id":null,"name":"Qinous Demonstrator Site - Lithium-Ion ","om\_contractor":"","organization":"Qinous GmbH","owner\_1":"Qinous GmbH","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.qinous.de/en/test-facility/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":1.11666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":7.0,"state":"Berlin","status":"Operational","street\_address":"Wilhelminenhofstr. 75","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Manganese Oxide Battery","technology\_type\_l1":"Lithium Manganese Oxide Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-25T08:19:00Z","updated\_at\_by\_admin":"2016-03-17T23:34:05Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":"12459"}},{"project":{"announcement\_on":"2022-10-01","approval\_status":1,"city":"Fort Bragg","commissioning\_on":null,"companion":"15 kW Solar Array, DC Microgrid","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"thilo.resehoeft@bosch.com","contact\_info\_visible":true,"contact\_name":"Thilo Resenhoeft","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2014-11-17T16:17:28Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"100 kW outdoor system in 20' container (PCS and Battery in the same container).\r\n\r\nDC microgrid for the US Department of Defense to provide back-up functionality, frequency regulation and PV shaping.","developer":"Bosch","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":2800000.0,"funding\_amount\_3":null,"funding\_source\_1":"ESTCP, DoD","funding\_source\_2":"State/Provincial/Regional","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"California Energy Commission ","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1634,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Bosch","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":35.139167,"longitude":-78.999167,"master\_project\_id":null,"name":"Fort Bragg Microgrid ESS - Bosch","om\_contractor":"Bosch","organization":"Bosch","owner\_1":"ESTCP","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.serdp-estcp.org/Program-Areas/Energy-and-Water/Energy/Microgrids-and-Storage/EW-201352","primary\_reference1":"http://www.energy.ca.gov/research/epic/documents/2015-12-03\_symposium/presentations/Session\_1A\_4\_Sharmila\_Ravula\_Robert\_Bosch.pdf","projected\_lifetime":"3.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":100,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"North Carolina","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-25T09:05:22Z","updated\_at\_by\_admin":"2014-11-17T16:18:23Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Sand Hills Utility","utility\_type":"State/Municipal Owned","vendor\_company":"Sony","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Eastern ","commissioning\_on":"2022-10-19","companion":"10-kV substation & 290 kW PV Systems","construction\_on":"2022-09-01","contact\_city":"Munich","contact\_country":"Germany","contact\_email":"marcus.mueller@tum.de","contact\_info\_visible":true,"contact\_name":"Marcus Müller","contact\_phone":"+498928926973","contact\_state":"Bavaria","contact\_street\_address":"Karlstraße 45","contact\_zip":"80333","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-11-21T10:07:30Z","created\_by\_id":306,"debt\_investor":"","decommissioning\_on":null,"desc":"The Research Project EEBatt “Distributed stationary battery storage systems for the efficient use of renewable energies and support of grid stability” is a multidisciplinary project run by the TUM’s Munich School of Engineering (MSE).","developer":"Technical Universitiy of Munich","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":28800000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional RD&D","funding\_source\_2":"Federal/National","funding\_source\_3":"","funding\_source\_details\_1":"Bayerisches Staatsministerium für Wirtschaft und Medien, Energie und Technologie","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1635,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1635/EEBatt.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1635/thumb\_EEBatt.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1635/partner\_EEBatt.jpg"}},"integrator\_company":"Technical Universitiy of Munich","integrator\_fax":"","is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.4,"longitude":11.0,"master\_project\_id":null,"name":"EEBatt Energy Neighbor Pilot Project - Technical University of Munich","om\_contractor":"","organization":"Technical University of Munich","owner\_1":"Technical University of Munich","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.mse.tum.de/en/eebatt/","primary\_reference1":"http://www.smarterworld.de/smart-power/batterien/artikel/124146/","projected\_lifetime":"4.0","rdd\_status":"Yes","research\_desc":"ZAE Bayern works on the interface between evidence-based fundamental and applied- industrial research. Every year the institute performs a great number of projects with the industry, from SME to large groups, as well as with university and non-university research partners. The most important themes of research at ZAE Bayern are to encourage the use of renewable energy and increasing the energy efficiency.","research\_institution":"Bavarian Center for Applied Energy Research (ZAE Bayern)","research\_institution\_link":"http://www.zae-bayern.de/en/the-zae-bayern.html","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Grid-Connected Residential (Reliability)","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"Onsite Renewable Generation Shifting","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":250,"size\_kwh":0.8,"size\_kwh\_hours":0,"size\_kwh\_minutes":48.0,"state":"Bavaria","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-02T07:20:56Z","updated\_at\_by\_admin":"2016-01-30T01:20:29Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"VARTA Storage GmbH","zip":""}},{"project":{"announcement\_on":"2021-12-18","approval\_status":1,"city":"Alt Daber","commissioning\_on":null,"companion":"67.8 MW Solar Power Plant","construction\_on":null,"contact\_city":"Dresden","contact\_country":"Germany","contact\_email":"michael.werner@belectric.com","contact\_info\_visible":false,"contact\_name":"Michael Werner","contact\_phone":"","contact\_state":"Sachsen","contact\_street\_address":"Industriestraße 65","contact\_zip":"1129","contractor\_1":"BELECTRIC GmbH","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-12-18T08:45:20Z","created\_by\_id":308,"debt\_investor":"","decommissioning\_on":null,"desc":"The innovative Energy Buffer Unit (EBU) with its state-of-the-art lead-acid batteries is used for regulation reserve applications. In Alt Daber there is a prototype project wherin BELECTRIC created a cost efficient solution for the commercial use of battery storage in this business area due to the integrated system design of the EBU and its intelligent control system. With its rated power of 1600 kW which is completly provided in a millisecond range the electricity grid can be stabalized fast and therefore in a highly efficient way.","developer":"BELECTRIC GmbH","electronics\_provider":"GE and BELECTRIC GmbH","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1638,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1638/20141126buffer13.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1638/thumb\_20141126buffer13.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1638/partner\_20141126buffer13.jpg"}},"integrator\_company":"Vattenfall and EDIS","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":53.204087,"longitude":12.5001569,"master\_project\_id":null,"name":"Energy Buffer Unit (EBU) - BELECTRIC GmbH","om\_contractor":"BELECTRIC GmbH","organization":"","owner\_1":"BELECTRIC GmbH","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://cleantechnica.com/2014/12/06/belectric-vattenfall-unveil-battery-storage-facility-alt-daber-solar-plant/","primary\_reference1":"https://cleantechnica.com/2015/05/20/belectrics-energy-buffer-unit-alt-daber-solar-project-now-approved-operate-germanys-grid-balancing-frequency-response-market/","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"R&amp;D of the whole EBU","research\_institution":"Adensis GmbH","research\_institution\_link":"http://www.adensis.com/code/","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1500,"size\_kwh":0.666666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":40.0,"state":"Brandenburg","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-01T02:05:45Z","updated\_at\_by\_admin":"2014-12-18T15:08:53Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Exide GNB","zip":""}},{"project":{"announcement\_on":"2022-07-01","approval\_status":2,"city":"Munich","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Munich","contact\_country":"Germany","contact\_email":"michael.schimpe@tum.de","contact\_info\_visible":true,"contact\_name":"Michael Schimpe","contact\_phone":"+49 (0) 89 / 289 - 26984","contact\_state":"Bavaria","contact\_street\_address":"Arcisstraße 21","contact\_zip":"80333","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2014-12-19T09:42:32Z","created\_by\_id":309,"debt\_investor":"","decommissioning\_on":null,"desc":"In the compound project the use of stationary energy systems in intelligent home energy management systems is being researched, developed and evaluated. Possible synergies of the thermal and electrical object supply are utilized with the support of predicative operating strategies. The system contains distributed generation and consumption for the energy supply of residential homes such as photovoltaics, energy storage systems, solar thermal units, heating units, cogeneration units, heat storage systems and control units at the system systems level. The objective is an efficient operation of the considered system with a maximum utilization of renewable energies under consideration of reasonable business models.\r\nThe part of TUM focuses on the battery system and includes, among others:\r\n•\tDevelopment of operating strategies for the battery system\r\n•\tSystem simulation and design of the battery system\r\n•\tLifetime tests on single battery cells\r\n•\tConstruction of a prototypical battery system and deployment in a demonstrator system\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Bayerisches Staatsministerium für Wirtschaft und Medien, Energie und Technologie","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1643,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.1440989,"longitude":11.5695525,"master\_project\_id":null,"name":"IHEM - Intelligent HomeEnergyManagement","om\_contractor":"","organization":null,"owner\_1":"Technical University of Munich","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.ees.ei.tum.de/en/homepage/","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Residential (Reliability)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":3,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Bavaria","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2014-12-19T14:53:22Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"80333"}},{"project":{"announcement\_on":"2022-01-27","approval\_status":2,"city":"Santa Barbara","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"asmith@greencharge.net","contact\_info\_visible":true,"contact\_name":"Anne Smith","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-01-27T04:19:03Z","created\_by\_id":312,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks installed an intelligent energy storage system with a DC Fast Charger (electric vehicles). Under the financed model, Green Charge Networks shares in the demand charge savings that the site host realizes monthly on their energy bills. The model provides the site host with a zero-down, no cost turnkey energy storage and EV charging solution. Green Charge Networks is aggregating these locations to participate in demand response programs.","developer":"Green Charge Networks","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1644,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Green Charge Networks","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.4249194,"longitude":-119.7034349,"master\_project\_id":null,"name":"County of Santa Barbara Green Charge Networks GreenStation","om\_contractor":"","organization":null,"owner\_1":"Green Charge Networks","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.greencharge.net","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":30,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"105 E Anapamu Street","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-01-27T19:04:05Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison (SCE)","utility\_type":"Investor Owned","vendor\_company":"","zip":"93101"}},{"project":{"announcement\_on":"2022-01-27","approval\_status":2,"city":"Oak Park","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"asmith@greencharge.net","contact\_info\_visible":true,"contact\_name":"Anne Smith","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-01-27T04:19:03Z","created\_by\_id":312,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks installed an intelligent energy storage system with a DC Fast Charger (electric vehicles). Under the financed model, Green Charge Networks shares in the demand charge savings that the site host realizes monthly on their energy bills. The model provides the site host with a zero-down, no cost turnkey energy storage and EV charging solution. 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The financing structure provides the site host with a zero-down, no cost turnkey energy storage solution with cost-savings and revenue-generating opportunities.","developer":"Green Charge Networks","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1660,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Green Charge Networks","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":36.8629759,"longitude":-119.7656335,"master\_project\_id":null,"name":"Green Charge Networks GreenStation Announced 11","om\_contractor":"","organization":null,"owner\_1":"Green Charge Networks","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.greencharge.net","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":60,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"1070 East Teague Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-01-27T18:59:08Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas &amp; Electric (PG&amp;E)","utility\_type":"Investor Owned","vendor\_company":"","zip":"93720"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Santa Cruz","commissioning\_on":"2022-09-28","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"asmith@greencharge.net","contact\_info\_visible":true,"contact\_name":"Anne Smith","contact\_phone":"408-313-8089","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":250000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2015-01-27T04:19:08Z","created\_by\_id":312,"debt\_investor":"","decommissioning\_on":null,"desc":"Engie Storage (formerly Green Charge Networks) installed an intelligent energy storage system. Under the financed model, Engie Storage (formerly Green Charge Networks) shares in the demand charge savings that the site host realizes monthly on their energy bills. Engie Storage (formerly Green Charge Networks) is aggregating these locations to participate in demand response programs. The financing structure provides the site host with a zero-down, no cost turnkey energy storage solution with cost-savings and revenue-generating opportunities.","developer":"Engie Storage (formerly Green Charge Networks)","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1661,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1661/GCN\_SantaCruzCounty.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1661/thumb\_GCN\_SantaCruzCounty.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1661/partner\_GCN\_SantaCruzCounty.jpg"}},"integrator\_company":"Engie Storage (formerly Green Charge Networks)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":36.9778559,"longitude":-122.0226305,"master\_project\_id":null,"name":"90 kW / 180 kWh Santa Cruz County Building - Engie Storage (formerly Green Charge Networks)","om\_contractor":"","organization":"Engie Storage (formerly Green Charge Networks)","owner\_1":"Engie Storage (formerly Green Charge Networks)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.engiestorage.com/santa-cruz-county-partners-with-green-charge-networks-to-install-the-first-intelligent-energy-storage-system-in-the-county/","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":90,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"701 Ocean Street","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-03-04T01:13:55Z","updated\_at\_by\_admin":"2016-01-11T22:01:11Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Pacific Gas &amp; Electric (PG&amp;E)","utility\_type":"Investor Owned","vendor\_company":"","zip":"95060"}},{"project":{"announcement\_on":"2022-01-27","approval\_status":2,"city":"San Francisco","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"asmith@greencharge.net","contact\_info\_visible":true,"contact\_name":"Anne Smith","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-01-27T04:19:08Z","created\_by\_id":312,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks installed an intelligent energy storage system. Under the financed model, Green Charge Networks shares in the demand charge savings that the site host realizes monthly on their energy bills. Green Charge Networks is aggregating these locations to participate in demand response programs. The financing structure provides the site host with a zero-down, no cost turnkey energy storage solution with cost-savings and revenue-generating opportunities.","developer":"Green Charge Networks","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1662,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Green Charge Networks","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.72485,"longitude":-122.398679,"master\_project\_id":null,"name":"Green Charge Networks GreenStation Announced 13","om\_contractor":"","organization":null,"owner\_1":"Green Charge Networks","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.greencharge.net","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"400 Paul Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-01-27T18:58:22Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas &amp; Electric (PG&amp;E)","utility\_type":"Investor Owned","vendor\_company":"","zip":"94124"}},{"project":{"announcement\_on":"2022-01-27","approval\_status":2,"city":"Whittier","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"asmith@greencharge.net","contact\_info\_visible":true,"contact\_name":"Anne Smith","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-01-27T04:19:08Z","created\_by\_id":312,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks installed an intelligent energy storage system. Under the financed model, Green Charge Networks shares in the demand charge savings that the site host realizes monthly on their energy bills. Green Charge Networks is aggregating these locations to participate in demand response programs. The financing structure provides the site host with a zero-down, no cost turnkey energy storage solution with cost-savings and revenue-generating opportunities.","developer":"Green Charge Networks","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1663,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Green Charge Networks","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.9751217,"longitude":-118.0346006,"master\_project\_id":null,"name":"Green Charge Networks GreenStation Announced 14","om\_contractor":"","organization":null,"owner\_1":"Green Charge Networks","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.greencharge.net","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":60,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"13200 Penn Street","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-01-27T18:58:03Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison (SCE)","utility\_type":"Investor Owned","vendor\_company":"","zip":"90602"}},{"project":{"announcement\_on":"2022-01-27","approval\_status":2,"city":"Ventura","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"asmith@greencharge.net","contact\_info\_visible":true,"contact\_name":"Anne Smith","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-01-27T04:19:09Z","created\_by\_id":312,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks installed an intelligent energy storage system. Under the financed model, Green Charge Networks shares in the demand charge savings that the site host realizes monthly on their energy bills. Green Charge Networks is aggregating these locations to participate in demand response programs. The financing structure provides the site host with a zero-down, no cost turnkey energy storage solution with cost-savings and revenue-generating opportunities.","developer":"Green Charge Networks","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1664,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Green Charge Networks","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.2773843,"longitude":-119.2306844,"master\_project\_id":null,"name":"Green Charge Networks GreenStation Announced 15","om\_contractor":"","organization":null,"owner\_1":"Green Charge Networks","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.greencharge.net","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":200,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"4667 Telegraph Road","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-01-27T18:57:43Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison (SCE)","utility\_type":"Investor Owned","vendor\_company":"","zip":"93003"}},{"project":{"announcement\_on":"2022-01-27","approval\_status":2,"city":"Oxnard","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"asmith@greencharge.net","contact\_info\_visible":true,"contact\_name":"Anne Smith","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-01-27T04:19:09Z","created\_by\_id":312,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks installed an intelligent energy storage system. Under the financed model, Green Charge Networks shares in the demand charge savings that the site host realizes monthly on their energy bills. Green Charge Networks is aggregating these locations to participate in demand response programs. The financing structure provides the site host with a zero-down, no cost turnkey energy storage solution with cost-savings and revenue-generating opportunities.","developer":"Green Charge Networks","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1665,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Green Charge Networks","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.1631687,"longitude":-119.159133,"master\_project\_id":null,"name":"Green Charge Networks GreenStation Announced 16","om\_contractor":"","organization":null,"owner\_1":"Green Charge Networks","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.greencharge.net","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":200,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"4000 South Rose Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-01-27T18:57:26Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison (SCE)","utility\_type":"Investor Owned","vendor\_company":"","zip":"93033"}},{"project":{"announcement\_on":"2022-01-27","approval\_status":2,"city":"Moorpark","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"asmith@greencharge.net","contact\_info\_visible":true,"contact\_name":"Anne Smith","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-01-27T04:19:09Z","created\_by\_id":312,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks installed an intelligent energy storage system. Under the financed model, Green Charge Networks shares in the demand charge savings that the site host realizes monthly on their energy bills. Green Charge Networks is aggregating these locations to participate in demand response programs. The financing structure provides the site host with a zero-down, no cost turnkey energy storage solution with cost-savings and revenue-generating opportunities.","developer":"Green Charge Networks","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1666,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Green Charge Networks","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.285558,"longitude":-118.8820414,"master\_project\_id":null,"name":"Green Charge Networks GreenStation Announced 17","om\_contractor":"","organization":null,"owner\_1":"Green Charge Networks","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.greencharge.net","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":400,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"7075 Campus Road PRI","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-01-27T18:57:08Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison (SCE)","utility\_type":"Investor Owned","vendor\_company":"","zip":"93021"}},{"project":{"announcement\_on":"2022-01-27","approval\_status":2,"city":"San Diego","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"asmith@greencharge.net","contact\_info\_visible":true,"contact\_name":"Anne Smith","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-01-27T04:19:09Z","created\_by\_id":312,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks installed an intelligent energy storage system. 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The financing structure provides the site host with a zero-down, no cost turnkey energy storage solution with cost-savings and revenue-generating opportunities.","developer":"Green Charge Networks","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1683,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Green Charge Networks","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.829709,"longitude":-117.1324319,"master\_project\_id":null,"name":"Green Charge Networks GreenStation Announced 34","om\_contractor":"","organization":null,"owner\_1":"Green Charge Networks","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"www.greencharge.net","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":60,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"9242 Lightwave Ave 100","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-01-27T18:49:45Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas &amp; Electric (SDG&amp;E)","utility\_type":"Investor Owned","vendor\_company":"","zip":"92123"}},{"project":{"announcement\_on":"2022-05-29","approval\_status":2,"city":"Santa Monica","commissioning\_on":"2022-05-29","companion":"","construction\_on":"2022-05-29","contact\_city":"","contact\_country":"","contact\_email":"asmith@greencharge.net","contact\_info\_visible":false,"contact\_name":"Anne Smith","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-01-27T04:21:32Z","created\_by\_id":312,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks installed an intelligent energy storage system with a DC Fast Charger (electric vehicles). Under the financed model, Green Charge Networks shares in the demand charge savings that the site host realizes monthly on their energy bills. The model provides the site host with a zero-down, no cost turnkey energy storage and EV charging solution.","developer":"Green Charge Networks","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1685,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Green Charge Networks","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.0126959,"longitude":-118.4957845,"master\_project\_id":null,"name":"Shore Hotel Green Charge Networks GreenStation","om\_contractor":"","organization":null,"owner\_1":"Green Charge Networks","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://greencharge.net/","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":60,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"1515 Ocean Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-03-16T18:16:38Z","updated\_at\_by\_admin":"2015-03-16T18:16:38Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison (SCE)","utility\_type":"Investor Owned","vendor\_company":"","zip":"90401"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Santa Clara","commissioning\_on":"2022-05-01","companion":"","construction\_on":"2022-11-01","contact\_city":"","contact\_country":"","contact\_email":"asmith@greencharge.net","contact\_info\_visible":false,"contact\_name":"Anne Smith","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-01-27T04:21:32Z","created\_by\_id":312,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks installed an intelligent energy storage system with a DC Fast Charger (electric vehicles). 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This site was one of Green Charge's first demonstration sites in New York City, funded in part under the U.S. DOE's Smart Grid Demonstration Program.","developer":"Engie Storage (formerly Green Charge Networks)","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1687,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Engie Storage (formerly Green Charge Networks)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.7621728,"longitude":-73.999345,"master\_project\_id":null,"name":"43rd Street Site 1 - Engie Storage (formerly Green Charge Networks)","om\_contractor":"","organization":"Engie Storage (formerly Green Charge Networks)","owner\_1":"Engie Storage (formerly Green Charge Networks)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.engiestorage.com/","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":27,"size\_kwh":3.5,"size\_kwh\_hours":3,"size\_kwh\_minutes":30.0,"state":"New York","status":"Operational","street\_address":"643 W 43rd Street","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-03-04T11:01:55Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Con Edison of New York","utility\_type":"Investor Owned","vendor\_company":"","zip":"10036"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"New York","commissioning\_on":"2022-11-06","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"asmith@greencharge.net","contact\_info\_visible":false,"contact\_name":"Anne Smith","contact\_phone":"408-313-8089","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-01-27T04:21:33Z","created\_by\_id":312,"debt\_investor":"","decommissioning\_on":null,"desc":"Engie Storage (formerly Green Charge Networks) installed an intelligent energy storage at the Manhattan UPS downtown manufacturing facility. 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The BESS is able to provide the following services to the PV plant: Frequency Regulation, PV ramp rate control, PV power limitation, Voltage regulation.\r\nThe BESS performance has been validated by CENER (National Renewable Energy Centre) in Spain . CENER is a technology centre, specialized in applied research and in the development and promotion of renewable energies. It has highly skilled technical assistance and services for component testing and certification. BESS tests included: Energy Storage Characterization tests (charge/discharge curves, V-I vs SOC, power pulse), Power Converter System Characterization tests (efficiency, P/Q curve), Frequency Regulation tests, Voltage Regulation tests, Voltage dips tests ","developer":"Instalaciones Inabensa (Abengoa)","electronics\_provider":"Ingeteam","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1692,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Instalaciones Inabensa (Abengoa)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.3890924,"longitude":-5.9844589,"master\_project\_id":null,"name":"Seville BESS Abeinsa- Instalaciones Inabensa (Abengoa)","om\_contractor":"","organization":"N/A","owner\_1":"Instalaciones Inabensa (Abengoa)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"The BESS performance has been validated by CENER (National Renewable Energy Centre) in Spain . CENER is a technology centre, specialised in applied research and in the development and promotion of renewable energies. It has highly skilled technical assistance and services for component testing and certification. BESS tests included:· Energy Storage Characterization tests (charge/discharge curves, V-I vs SOC, power pulse)· Power Converter System Characterization tests (efficiency, P/Q curve)· Frequency Regulation tests· Voltage Regulation tests· Voltage dips tests ","primary\_reference":"http://www.abengoasolar.com/web/en/nuestras\_plantas/plantas\_en\_operacion/espana/index.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Ramping ","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.333333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":20.0,"state":"Seville","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Nickel Manganese Cobalt Battery","technology\_type\_l1":"Lithium Nickel Manganese Cobalt Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-08T05:55:46Z","updated\_at\_by\_admin":"2015-03-02T19:12:03Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Cegasa International","zip":""}},{"project":{"announcement\_on":"2021-12-18","approval\_status":1,"city":"Calama","commissioning\_on":null,"companion":"","construction\_on":"2021-12-14","contact\_city":"","contact\_country":"","contact\_email":"mm.garcia@abengoa.com","contact\_info\_visible":false,"contact\_name":"mm.garcia","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Chile","created\_at":"2015-02-20T16:59:32Z","created\_by\_id":310,"debt\_investor":"","decommissioning\_on":null,"desc":"BESS under construction. The project provide a 12 MW, 4 MWh storage resource designed to provide spinning reserve requirements to a CSP plant.","developer":"Instalaciones Inabensa (Abengoa)","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1693,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Instalaciones Inabensa (Abengoa)","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CDEC-SING","latitude":-22.453712,"longitude":-68.925307,"master\_project\_id":null,"name":"Atacama I","om\_contractor":"","organization":"","owner\_1":"Abengoa Solar Chile","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.abengoasolar.com/web/en/plantas\_solares/plantas\_propias/chile/index.html","primary\_reference1":"http://www.abengoasolar.com/web/en/acerca\_de\_nosotros/sala\_de\_prensa/noticias/2015/solar\_20150126.html?q=atacama-1","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100000,"size\_kwh":5.66666666666667,"size\_kwh\_hours":5,"size\_kwh\_minutes":40.0,"state":"II Región de Antofagasta","status":"Under Construction","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-10-26T23:20:23Z","updated\_at\_by\_admin":"2015-02-25T19:01:10Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-18","approval\_status":1,"city":"Calama","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"mm.garcia@abengoa.com","contact\_info\_visible":false,"contact\_name":"mm.garcia","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Chile","created\_at":"2015-02-20T16:59:32Z","created\_by\_id":310,"debt\_investor":"","decommissioning\_on":null,"desc":"This project appears to have been delayed.\r\n\r\nBESS under construction. The project provide a 12 MW, 4 MWh storage resource designed to provide spinning reserve requirements to a CSP plant.","developer":"Instalaciones Inabensa (Abengoa)","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1694,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Instalaciones Inabensa (Abengoa)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CDEC-SING","latitude":-22.453712,"longitude":-68.925307,"master\_project\_id":null,"name":"Atacama II","om\_contractor":"","organization":"","owner\_1":"Abengoa Solar Chile","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.abengoa.com/web/en/noticias\_y\_publicaciones/noticias/historico/2015/05\_mayo/abg\_20150527.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":12000,"size\_kwh":0.333333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":20.0,"state":"II Región de Antofagasta","status":"Announced/Never Built","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Nickel Manganese Cobalt Battery","technology\_type\_l1":"Lithium Nickel Manganese Cobalt Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-26T23:13:23Z","updated\_at\_by\_admin":"2015-02-25T19:01:20Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-09-02","approval\_status":1,"city":"Orange","commissioning\_on":"2022-05-22","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"grant.davis@sce.com","contact\_info\_visible":false,"contact\_name":"Grant Davis","contact\_phone":"9096008934","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-03-02T21:16:07Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Southern California Edison's (SCE) Distributed Energy Storage Integration (DESI) Pilot 1 supports the Scarlet 12 kV distribution circuit out of Orange Substation. This circuit feeds several large commercial and industrial customers, and sees intermittent, multi-megawatt spikes in demand as part of the customers’ manufacturing and testing operations. DESI 1 constantly monitors overall circuit load, as well as load from the predominant customer on the circuit, and discharges to dynamically limit the power of either of these loads to a predefined threshold. \r\n\r\nThe 2.4 MW/3.9 MWh NEC Solutions lithium-ion battery defers the need for costly distribution network upgrades and increases reliability by ensuring the circuit can meet summertime peaks. In addition to limiting load, the system can simultaneously support the voltage of the distribution circuit, or control reactive power flow at the substation by using the reactive power capability of the power conversion system.","developer":"","electronics\_provider":"Dynapower","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1707,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1707/DESI.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1707/thumb\_DESI.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1707/partner\_DESI.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.78659,"longitude":-117.8750976,"master\_project\_id":null,"name":"SCE Distributed Energy Storage Integration (DESI) Pilot 1","om\_contractor":"","organization":"","owner\_1":"Southern California Edison","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.metering.com/nec-completes-installation-of-2-4mw-energy-storage-system-for-californian-utility/","primary\_reference1":"https://www.edison.com/home/innovation/energy-storage.html","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":2400,"size\_kwh":1.61666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":37.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T20:04:58Z","updated\_at\_by\_admin":"2015-09-22T20:59:18Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"NEC Energy Solutions","zip":"92868"}},{"project":{"announcement\_on":"2022-01-14","approval\_status":0,"city":"Trojane","commissioning\_on":null,"companion":"Solar","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Julie.Still@imergy.com","contact\_info\_visible":false,"contact\_name":"Julie Still","contact\_phone":"831-332-1025","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Slovenia","created\_at":"2015-03-02T21:16:07Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Two Imergy ESP4 series vanadium-based flow batteries provide power to a famous restaurant's 49 kW solar photovoltaic system as part of an energy storage project designed to demonstrate how Imergy's flow batteries manage multiple applications. The project is part of the European AlpStore program, which works to develop a long-term energy storage strategy for the Alpine regions.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1708,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1708/Imergy.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1708/thumb\_Imergy.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1708/partner\_Imergy.jpg"}},"integrator\_company":"Metronik Energija","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.1884096,"longitude":14.8839704,"master\_project\_id":null,"name":"Imergy Trojane Project","om\_contractor":"","organization":null,"owner\_1":"Elektro Ljubljana","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.imergy.com/press-releases/2015/1/imergy-flow-batteries-installed-at-trojane-restaurant-part-of-alpstore-energy-storage-strategy-development-for-europes-alpine-region","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"EV Charging","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10,"size\_kwh":4.5,"size\_kwh\_hours":4,"size\_kwh\_minutes":30.0,"state":"Lukovica","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-03-03T00:39:04Z","updated\_at\_by\_admin":"2015-03-03T00:39:04Z","updated\_by":null,"updated\_by\_email":null,"utility":"Elektro Ljubljana","utility\_type":"","vendor\_company":"Imergy Power Systems","zip":""}},{"project":{"announcement\_on":"2022-01-03","approval\_status":1,"city":"Gatton","commissioning\_on":"2022-01-01","companion":"3.275 MW solar PV array","construction\_on":"2022-11-12","contact\_city":"","contact\_country":"","contact\_email":"p.meredith1@uq.edu.au","contact\_info\_visible":false,"contact\_name":"Paul Meredith","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2015-03-02T21:16:07Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The 600 kW / 760 kWh system is to be operated alongside the University of Queensland-owned Gatton solar power plant in south-east Queensland. The project is grid connected and demonstrates the viability of energy storage for large-scale solar power plant applications, and the benefits it can provide distribution networks, in the delivery of a predictable, reliable and constant flow of electricity. \r\n\r\nThe battery is used for peak load demand and is connected into the ENERGEX 11 kV network - the Lockyer Valley single-wire earth return (SWER).","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"Kokam (BMS); University of Queensland (PV Power Plant Central Supervisory System)","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Education Infrastructure Fund","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1709,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1709/Gatton-Aerial.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1709/thumb\_Gatton-Aerial.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1709/partner\_Gatton-Aerial.jpg"}},"integrator\_company":"MPower (Australia); Povecta (Australia); University of Queensland","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-27.537373,"longitude":152.272137,"master\_project\_id":null,"name":"University of Queensland Gatton Campus PV Pilot Plant","om\_contractor":"","organization":"University of Queensland","owner\_1":"Tag Pacific","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Reduced campus grid electricity use by 40% and delivered 10% higher average annual energy yield than projected","primary\_reference":"http://www.pv-magazine.com/news/details/beitrag/grid-scale-battery-storage-not-yet-panacea-for-australia-renewables\_100025779/?utm\_source=Sailthru&utm\_medium=email&utm\_campaign=Issue:%202016-08-16%20Utility%20Dive%20Storage%20%5Bissue:6919%5D&utm\_term=Utility%20Dive:%20Storage#axzz4HWKjZuUa","primary\_reference1":"http://cleantechnica.com/2015/01/03/mpower-build-australias-largest-energy-storage-system/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"University of Queensland","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":600,"size\_kwh":1.26666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":16.0,"state":"Queensland","status":"Operational","street\_address":"Warrego Highway","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-23T19:44:09Z","updated\_at\_by\_admin":"2016-08-22T23:14:45Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Kokam","zip":"4343"}},{"project":{"announcement\_on":"2021-12-29","approval\_status":1,"city":"El Centro","commissioning\_on":"2022-10-01","companion":"El Centro Power Plant; Midway III and SunPeak 2 Solar Plants","construction\_on":"2022-11-12","contact\_city":"","contact\_country":"","contact\_email":"BLTownsend@iid.com","contact\_info\_visible":false,"contact\_name":"Bruce Townsend (Imperial Irrigation District)","contact\_phone":"760-398-5844","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"ZGlobal","contractor\_2":"Chula Vista Electric Co. ","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-03-02T21:16:08Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Imperial Irrigation District (IID) is installing a large-scale battery system that will help integrate around 50 MW of solar generation capacity to the local grid. The project will involve the installation of a 30 MW / 20 MWh battery-based energy storage system with 92 kV interconnection. The IID battery will help the grid accommodate power from two large-scale solar projects, Midway III and SunPeak 2.\r\n\r\nThe facility, sited near the El Centro Power Plant Unit 3 Repower Project, will aid grid flexibility and increase reliability on the IID network by providing solar ramping, frequency regulation, power balancing and black start capability for an adjacent gas turbine. ","developer":"Coachella Energy Storage Partners (CESP)","electronics\_provider":"GE Brilliance MW inverters","energy\_management\_software\_provider":" GE’s Mark\* VI plant controls","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1710,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1710/IDD.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1710/thumb\_IDD.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1710/partner\_IDD.jpg"}},"integrator\_company":"General Electric (GE)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"IID","latitude":32.792,"longitude":-115.5630514,"master\_project\_id":null,"name":"Imperial Irrigation District BESS - GE","om\_contractor":"ZGlobal (for first 18 months, then transferred to Imperial Irrigation District)","organization":"Imperial Irrigation District","owner\_1":"Imperial Irrigation District","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.iid.com/Home/Components/News/News/477/30?backlist=%2F","primary\_reference1":"http://www.energy-storage.news/news/california-community-owned-utility-goes-for-battery-to-integrate-50mw-of-pv","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Load Following (Tertiary Balancing)","service\_use\_case\_5":"Ramping ","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":30000,"size\_kwh":0.666666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":40.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-19T03:17:11Z","updated\_at\_by\_admin":"2017-05-09T20:37:53Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Imperial Irrigation District","utility\_type":"Public Owned","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":"2021-12-18","approval\_status":1,"city":"Nagareyama","commissioning\_on":"2021-12-22","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"media.relations@toshiba.co.jp","contact\_info\_visible":false,"contact\_name":"Aya Oshima / Yuu Takase","contact\_phone":"n +81-3-3457-2100","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2015-03-02T21:16:08Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Toshiba Corporation's traction energy storage system (TESS) is installed at Unga Station on the Tobu Urban Park Line for Tobu Railway Co., Ltd. Toshiba's TESS utilizes Toshiba's SCiB(tm) rechargeable batteries to store regenerated power. Regenerative traction energy from train deceleration is stored in the TESS for supply as needed when trains are accelerating from the station. In addition to supporting stable supply, the system can also be optimally configured to support other applications, including traction energy loss prevention and peak demand power management.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1711,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1711/TESS.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1711/thumb\_TESS.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1711/partner\_TESS.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.8563097,"longitude":139.9026602,"master\_project\_id":null,"name":"Toshiba Unga Station TESS","om\_contractor":"","organization":"","owner\_1":"Tobu Railway Co.","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.toshiba.co.jp/about/press/2014\_12/pr1801.htm","primary\_reference1":"http://www.businesswire.com/news/home/20141217006543/en/Toshiba-Supplies-Traction-Energy-Storage-System-Tobu#.VMl0xnB4r\_N","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transportation Services","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":2.83333333333333,"size\_kwh\_hours":2,"size\_kwh\_minutes":50.0,"state":"Chiba","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-08T04:59:53Z","updated\_at\_by\_admin":"2015-03-02T23:57:49Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Toshiba Corporation","zip":""}},{"project":{"announcement\_on":"2021-12-17","approval\_status":1,"city":"Glacier","commissioning\_on":"2022-05-31","companion":"","construction\_on":"2022-09-01","contact\_city":"","contact\_country":"","contact\_email":"ray.lane@pse.com","contact\_info\_visible":false,"contact\_name":"Ray Lane","contact\_phone":"888-831-7250","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":9800000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2015-03-02T21:16:08Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Puget Sound Energy (PSE) and Renewable Energy Systems Americas Inc. (RES Americas) have signed agreements to cooperate on launching an innovative battery storage project in Whatcom County that could pave the way for larger scale efforts in PSE’s service territory.\r\n\r\nElectricity will be stored in state-of-the-art battery modules that are as large as 40-foot shipping containers, the same amount of energy found in 1.7 million AA batteries. The battery system will be capable of providing up to 18 hours of power during an outage for the core area of Glacier. The average demand of the core part of town is estimated to be 250 kW.\r\n\r\nThe Glacier battery units have been online since September 2016, however, the automation of the batteries has not yet been completed. This means that the units cannot automatically shift the power load of the \"island\" from the power grid to the batteries and back to the grid.\r\n\r\nDuring a planned power outage on Oct. 24, we completed some very useful and valuable testing of the automation, during which the batteries successfully powered the island of the town for approximately 6 hours. Future testing of the automation feature will be required.\r\n\r\nDuring a planned power outage on Aug. 28, we successfully used the battery to back up the island of customers in Glacier","developer":"RES Americas","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":3800000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Department of Commerce Clean Energy Fund","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1712,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1712/Glacier.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1712/thumb\_Glacier.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1712/partner\_Glacier.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.8901226,"longitude":-121.9457016,"master\_project\_id":null,"name":"2 MW/ 4.4 MWh Puget Sound Energy - Glacier Battery Storage","om\_contractor":"","organization":"","owner\_1":"Puget Sound Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://pse.com/inyourcommunity/pse-projects/system-improvements/Pages/Glacier-battery-storage-project.aspx","primary\_reference1":"http://www.kirklandreporter.com/news/286133391.html","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":2000,"size\_kwh":2.2,"size\_kwh\_hours":2,"size\_kwh\_minutes":12.0,"state":"Washington","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T23:46:04Z","updated\_at\_by\_admin":"2016-02-12T17:53:53Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Puget Sound Energy","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-06-23","approval\_status":0,"city":"Dallas","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":500000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2015-03-02T21:16:08Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Oncor, Texas' largest transmission company, is installing five lithium-ion batteries this summer in South Dallas neighborhoods, providing backup power to schools, traffic lights and a fire station. With the capacity to each store 50 kWh of energy — enough to power three to five houses for three hours — the batteries are designed to kick in when the electricity trips off, whether because of a falling branch or equipment issues.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1713,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1713/Oncor.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1713/thumb\_Oncor.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1713/partner\_Oncor.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":32.7766642,"longitude":-96.7969879,"master\_project\_id":null,"name":"Oncor Battery Storage","om\_contractor":"","organization":null,"owner\_1":"Oncor Electric","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.texastribune.org/2014/06/23/windy-texas-major-testing-ground-energy-storage/#","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-03-03T00:15:49Z","updated\_at\_by\_admin":"2015-03-03T00:15:49Z","updated\_by":null,"updated\_by\_email":null,"utility":"Oncor Electric","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Onslow","commissioning\_on":"2021-12-08","companion":"Solar","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Sid.Masilamani@energymadeclean.com; lbelisle@brightlinestrategies.com; research@energystoragealliance.com.au","contact\_info\_visible":false,"contact\_name":"Sid Masilamani; Lauren Belisle; AESDB","contact\_phone":"703-739-2424 x 111","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2015-03-02T21:16:08Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Mackerel Islands Tourist Resort in Western Australia coast has gone 100% renewable, with the launch of a 325 kW solar plus storage system – one of the largest off-grid examples in Australia without any fossil fuels.\r\n\r\nThe system, which was designed and built by local WA company Energy Made Clean, consists of 1,200 solar panels (325 kW) and 512 lithium ion batteries (640 kWh), and will supply 100% of the power needs of the eco-tourism resort in WA’s northwest Pilbara Coastal region, 22 km offshore from the town of Onslow.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1714,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1714/Mackerel.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1714/thumb\_Mackerel.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1714/partner\_Mackerel.jpg"}},"integrator\_company":"Energy Made Clean (EMC)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-21.637849,"longitude":115.1133872,"master\_project\_id":null,"name":"Mackerel Islands (Thevenard Island) Solar Plus Storage","om\_contractor":"","organization":"Energy Made Clean (EMC); Brightline Strategies; Australian Energy Storage Alliance (AESA)","owner\_1":"Mackerel Islands Tourist Resort","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://reneweconomy.com.au/2014/wa-island-resort-goes-100-renewables-solar-storage-34106?utm\_source=Energy+Storage+Report&amp;utm\_campaign=86fc8311cf-ESR\_2\_10\_1210\_2\_2012&amp;utm\_medium=email&amp;utm\_term=0\_bd57f7e9aa-86fc8311cf-80843329","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"Electric Power Research Institute (EPRI)","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":325,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Western Australia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-06T06:45:48Z","updated\_at\_by\_admin":"2016-05-26T18:25:40Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Energy Made Clean (EMC)","zip":""}},{"project":{"announcement\_on":"2022-11-20","approval\_status":0,"city":"San Mateo","commissioning\_on":null,"companion":"Solar","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"press@solarcity.com","contact\_info\_visible":false,"contact\_name":"Molly Canales","contact\_phone":"(650) 963-5674","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-03-02T21:16:09Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Walmart is also at the forefront of commercializing storage technology and was a pilot customer for SolarCity’s energy storage system for businesses. Since early 2013, Walmart has tested 13 battery storage projects with solar installations across California to provide additional savings to Walmart by using stored electricity to lower peak demand charges. The next ten solar energy storage projects will each use a larger 200 kW (400 kWh) battery, expanding battery storage capabilities as well as further reducing energy expense.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1716,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1716/cs-walmart-01.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1716/thumb\_cs-walmart-01.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1716/partner\_cs-walmart-01.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.5629917,"longitude":-122.3255254,"master\_project\_id":null,"name":"SolarCity Walmart Solar Storage Projects California","om\_contractor":"","organization":null,"owner\_1":"SolarCity","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.solarcity.com/newsroom/press/solarcity-announces-new-solar-power-and-energy-storage-projects-walmart","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-08-17T16:34:16Z","updated\_at\_by\_admin":"2015-08-17T16:34:15Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"Tesla","zip":""}},{"project":{"announcement\_on":"2022-11-19","approval\_status":2,"city":"New York City","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-03-02T21:16:09Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Urban Electric's 100 kW of energy storage, along with the data center, are moving up to the penthouse floor of Borough of Manhattan Community College, taking up the space of two former classrooms that together sat about 700 students a day. Along with a 300 kW solar array soon to arrive on the roof, the batteries will contribute to slimming the campus's carbon by 12 tons a year. Moreover, the solar panels and batteries are expected to net the school $54,000 a year through lower electricity bills and participation in demand-response programs with Con Edison.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1717,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1717/Urban\_Electric.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1717/thumb\_Urban\_Electric.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1717/partner\_Urban\_Electric.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.7127837,"longitude":-74.0059413,"master\_project\_id":null,"name":"BMCC Urban Electric 100 kW New York","om\_contractor":"","organization":null,"owner\_1":"Con Edison","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.eenews.net/stories/1060009142","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"New York","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Manganese Dioxide Battery","technology\_type\_l1":"Sodium based Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-04-08T21:29:10Z","updated\_at\_by\_admin":"2015-04-08T21:29:10Z","updated\_by":null,"updated\_by\_email":null,"utility":"Con Edison","utility\_type":"Investor Owned","vendor\_company":"Urban Electric Power","zip":""}},{"project":{"announcement\_on":"2022-10-30","approval\_status":0,"city":"New Castle","commissioning\_on":null,"companion":"Solar","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@axionpower.com","contact\_info\_visible":false,"contact\_name":"Philip Baker","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-03-02T21:16:09Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Axion Power International, Inc., a developer of advanced lead-carbon PbC® batteries, energy storage systems and frequency regulation systems, has been designated as the supplier of energy storage and frequency regulation for a solar farm that will be the largest in Pennsylvania. The Coatesville Solar Initiative (CSI) announced its choice of Axion Power and its PbC® technology and batteries for the 48-acre project. Axion Power PbC PowerCube™ technology has been admitted to connect with the 13-state PJM power grid, and brings that certification to the CSI project.\r\n\r\nPhase I &amp; II of the multi-phased project is comprised of two 2.4 MW solar facilities, generating approximately 6.3 million kWh which CSI has contractually agreed to sell Coatesville Area School District (CASD) through a 25-year solar power purchase agreement (SPPA). According to CSI, when completed, the 9.1 MW solar farm will be the largest solar park facility in Pennsylvania.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1718,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1718/Axion\_Power\_Cube.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1718/thumb\_Axion\_Power\_Cube.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1718/partner\_Axion\_Power\_Cube.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":41.0036719,"longitude":-80.347009,"master\_project\_id":null,"name":"Axion Solar Farm 9.1 MW Coatesville","om\_contractor":"","organization":null,"owner\_1":"Axion Power International","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.prnewswire.com/news-releases/axion-power-designated-as-supplier-of-energy-storage-and-frequency-regulation-for-91-megawatt-pennsylvania-solar-farm-280917582.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":9000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Pennsylvania","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead Carbon Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-03-04T23:56:51Z","updated\_at\_by\_admin":"2015-03-04T23:56:51Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Axion Power International","zip":""}},{"project":{"announcement\_on":"2022-03-02","approval\_status":1,"city":"Burbank","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3232","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-03-02T22:12:11Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Ice Energy’s flagship Ice Bear system enables a powerful change in how – and more importantly when – energy is consumed for air conditioning. The Ice Bear system is an intelligent distributed energy storage solution that works in conjunction with commercial direct-expansion (DX) air-conditioning systems, specifically the refrigerant-based, 4-20-ton packaged rooftop systems common to most small to mid-sized commercial buildings. The system stores energy at night, when electricity generation is cleaner, more efficient and less expensive, and delivers that energy during the peak of the day to provide cooling to the building. Daytime energy demand from air conditioning – typically 40-50% of a building’s electricity use during peak daytime hours – can be reduced significantly. In kilowatts, each Ice Bear delivers an average reduction of 12 kW of source equivalent peak demand for a minimum of 6 hours daily, shifting 72 kW-hours of on-peak energy to off-peak hours. Ice Bear units are typically owned by utilities and installed at distributed locations behind the customer meter on commercial and industrial sites. When aggregated and deployed at scale, a typical utility deployment will shift the operation of thousands of commercial AC condensing units from on-peak periods to off-peak periods, reducing electric system demand, improving electric system load factor, reducing electric system costs, and improving overall electric system efficiency and power quality.","developer":"Ice Energy","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1719,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1719/Ice\_Energy\_Ice\_Bear.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1719/thumb\_Ice\_Energy\_Ice\_Bear.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1719/partner\_Ice\_Energy\_Ice\_Bear.jpg"}},"integrator\_company":"Ice Energy","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.1808392,"longitude":-118.3089661,"master\_project\_id":null,"name":"Verdugo Recreation #1 - Ice Energy","om\_contractor":"Ice Energy","organization":"Ice Energy","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.ice-energy.com","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":8,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"630 California St./3201 W. 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Buena Vista","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-01-15T03:01:35Z","updated\_at\_by\_admin":"2015-03-02T23:19:36Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Burbank Water &amp; Power","utility\_type":"Public Owned","vendor\_company":"Ice Energy","zip":""}},{"project":{"announcement\_on":"2022-03-02","approval\_status":1,"city":"Burbank","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3235","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-03-02T22:12:12Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Ice Energy’s flagship Ice Bear system enables a powerful change in how – and more importantly when – energy is consumed for air conditioning. 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When aggregated and deployed at scale, a typical utility deployment will shift the operation of thousands of commercial AC condensing units from on-peak periods to off-peak periods, reducing electric system demand, improving electric system load factor, reducing electric system costs, and improving overall electric system efficiency and power quality.","developer":"Ice Energy","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1735,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1735/Ice\_Energy\_Ice\_Bear.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1735/thumb\_Ice\_Energy\_Ice\_Bear.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1735/partner\_Ice\_Energy\_Ice\_Bear.jpg"}},"integrator\_company":"Ice Energy","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.1562013,"longitude":-118.3252152,"master\_project\_id":null,"name":"Disney Studios #2 - Ice Energy","om\_contractor":"Ice Energy","organization":"Ice Energy","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.ice-energy.com","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":8,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"500 S. 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David Paul & Associates #1 - Ice Energy","om\_contractor":"Ice Energy","organization":"Ice Energy","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.ice-energy.com","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":8,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"3100 Thornton Ave.","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-01-17T05:13:25Z","updated\_at\_by\_admin":"2015-03-02T23:09:00Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Burbank Water &amp; Power","utility\_type":"Public Owned","vendor\_company":"Ice Energy","zip":""}},{"project":{"announcement\_on":"2022-11-05","approval\_status":0,"city":"Carlsbad","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"Karen Cleeve","contact\_phone":"(609) 524-4608","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-03-11T18:42:28Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"NRG Energy has been awarded a contract with Southern California Edison (SCE) to develop a 2 MWh battery storage system. \r\n\r\nNRG Energy was one of 3 providers selected in the behind-the-meter energy storage category, which was part of an energy storage procurement by SCE that was significantly larger than the minimum mandated by the California Public Utility Commission (CPUC).","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1740,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.1580933,"longitude":-117.3505939,"master\_project\_id":null,"name":"NRG Energy 0.5 MW","om\_contractor":"","organization":null,"owner\_1":"NRG Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://phx.corporate-ir.net/phoenix.zhtml?c=121544&p=irol-newsArticle&ID=1986158","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-03-11T19:08:34Z","updated\_at\_by\_admin":"2015-03-11T19:03:04Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"NRG Energy","zip":""}},{"project":{"announcement\_on":"2022-11-05","approval\_status":2,"city":"Los Angeles","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"tracy@olmsteadwilliams.com","contact\_info\_visible":false,"contact\_name":"Tracy Williams","contact\_phone":"(310) 824-9000","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-03-11T18:46:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Ice Energy has been awarded 16 contracts from Southern California Edison (SCE) to provide 25.6 MW of behind-the-meter thermal energy storage using Ice Energy’s proprietary Ice Bear system.\r\n\r\nIce Energy was one of 3 providers selected in the behind-the-meter energy storage category, which was part of an energy storage procurement by SCE that was significantly larger than the minimum mandated by the California Public Utility Commission (CPUC).\r\n\r\nThe contract resulted from an open and competitive process under SCE’s Local Capacity Requirements (LCR) RFO. The goals of the LCR RFO and California’s Storage Act Mandates are to optimize grid reliability, support renewables integration to meet the 2020 portfolio standards, and support the goal of reducing greenhouse gas emissions to 20% of 1990 levels by 2050.\r\n\r\nIce Energy’s product, the Ice Bear, attaches to one or more standard 5-20 ton commercial AC units. The Ice Bear freezes ice at night when demand for power is low, capacity is abundant and increasingly sourced from renewables such as wind power. Then during the day, stored ice is used to provide cooling, instead of the power-intensive AC compressor. Ice Bears are deployed in smart-grid enabled, megawatt-scale fleets, and each Ice Bear can reduce harmful CO2 emissions by up to 10 tons per year. Installation is as quick as deploying a standard AC system.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1741,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1741/Ice\_Bear.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1741/thumb\_Ice\_Bear.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1741/partner\_Ice\_Bear.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.0522342,"longitude":-118.2436849,"master\_project\_id":null,"name":"Ice Energy procurement from SCE's November 2014 LCR: 25.6 MW","om\_contractor":"","organization":null,"owner\_1":"Ice Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.ice-energy.com/ice-energy-awarded-25-6-megawatts-contracts-southern-california-edison-behind-meter-thermal-energy-storage/","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":25600,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2015-03-12T02:46:35Z","updated\_at\_by\_admin":"2015-03-12T02:46:35Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-11-05","approval\_status":2,"city":"Los Angeles","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"manaly@advmicrogrid.com","contact\_info\_visible":false,"contact\_name":"Manal Yamout","contact\_phone":"(415) 638-6416","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-03-11T18:50:23Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Advanced Microgrid Solutions (AMS) announced today that the company has been awarded a 50 MW contract by Southern California Edison (SCE) to develop the first grid-scale fleet of Hybrid-Electric Buildings in the world.\r\n\r\nAMS's Hybrid-Electric Building project is a cutting-edge initiative to install advanced energy storage systems in commercial and industrial buildings to provide large-scale grid support to utilities. Equipped individual buildings with state-of-the-art battery technology and advanced energy management software enables the building load to be shifted from electric grid to battery power during peak demand periods. Hybrid-electric buildings are then aggregated into \"fleets\" and operated as a single resource, allowing SCE to shift the entire fleet of buildings to stored energy when grid resources are strained.\r\n\r\nThe first 10 MW Hybrid-Electric Building project will be installed in Irvine, California and will be completed in Q4 of 2016.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1743,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.0522342,"longitude":-118.2436849,"master\_project\_id":null,"name":"AMS 50 MW Hybrid-Electric Buildings","om\_contractor":"","organization":null,"owner\_1":"Advanced Microgrid Solutions","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://advmicrogrid.com/AMS\_Release.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":50000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-25T00:34:39Z","updated\_at\_by\_admin":"2016-05-25T00:34:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-11-05","approval\_status":2,"city":"Los Angeles","commissioning\_on":null,"companion":"Behind the meter","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"stem@antennagroup.com","contact\_info\_visible":false,"contact\_name":"Zoe Fishman","contact\_phone":"(415) 977-1929","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-03-11T18:56:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Stem, Inc. has been awarded 85 MW in the local capacity procurement from Southern California Edison (SCE). Under the terms of this multi-year agreement, Stem will deploy its advanced, behind-the-meter energy storage solution at customer locations in the Western Los Angeles Basin to act as dispatchable capacity to enhance the local reliability of the region.\r\n\r\nThrough the combination of reliable storage and a proprietary software platform, Stem empowers customers to more efficiently monitor and manage energy use while providing additional capacity to SCE. The Stem Zero financing program, backed by more than $100M in funding, enables immediate energy savings with no upfront cost.","developer":"Stem, Inc.","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1744,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Stem, Inc.","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.0522342,"longitude":-118.2436849,"master\_project\_id":null,"name":"Stem 85 MW Western Los Angeles Basin","om\_contractor":"","organization":null,"owner\_1":"Stem, Inc.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.stem.com/archives/11709","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"Grid-Connected Residential (Reliability)","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":85000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-03-12T02:49:56Z","updated\_at\_by\_admin":"2015-03-12T02:49:56Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Stem, Inc.","zip":""}},{"project":{"announcement\_on":"2022-02-25","approval\_status":1,"city":"Rupert","commissioning\_on":"2022-11-04","companion":"100.5 MW wind farm","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"corzel@invenergyllc.com","contact\_info\_visible":true,"contact\_name":"Chris Orzel","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-03-11T20:24:57Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The 31.5 MW Beech Ridge energy storage developed by Invenergy is located adjacent to its 100.5 MW wind farm in West Virginia. Beech Ridge will use stored wind energy to provide fast-response frequency regulation to the PJM Interconnection ancillary services market.\r\n\r\nThe energy storage device will have a combined nominal output of up to 31.5 MW, comprised of eighteen 1.8 MW modules. Each 1.8 MW module includes: one standard shipping container housing four battery strings; four 450 kW inverters to convert power between direct current and alternating current; a chiller to cool the battery containers; and a transformer for the inverter.","developer":"Invenergy, LLC.","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1745,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1745/Beech\_Ridge.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1745/thumb\_Beech\_Ridge.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1745/partner\_Beech\_Ridge.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":37.9631733,"longitude":-80.6895314,"master\_project\_id":null,"name":"Beech Ridge Wind Storage 31.5 MW","om\_contractor":"","organization":"","owner\_1":"Beech Ridge Energy Storage, LLC.","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.utilitydive.com/news/invenergy-adds-315-mw-battery-to-booming-pjm-frequency-regulation-market/408558/","primary\_reference1":"https://invenergyllc.com/news/invenergy-announces-start-of-commercial-operation-of-31-5-mw-beech-ridge-energy-storage-project-in-west-virginia","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Ramping ","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":31500,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"West Virginia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-25T23:24:26Z","updated\_at\_by\_admin":"2016-01-19T21:25:31Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Marseilles","commissioning\_on":"2022-05-14","companion":"210 MW wind farm; a 20 MW solar project; and an existing 1.5 MW energy storage unit","construction\_on":null,"contact\_city":"Chicago","contact\_country":"United States","contact\_email":"akrinsky@invenergyllc.com","contact\_info\_visible":true,"contact\_name":"Alissa Krinsky","contact\_phone":"","contact\_state":" Illinois","contact\_street\_address":"One South Wacker Drive, Suite 1900","contact\_zip":"60606","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-03-11T21:21:24Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Grand Ridge Energy Storage project is located approximately 80 mi southwest of Chicago, IL. It has a power rating of 31.5 MW and an energy rating of 12.2 MWh. The project is projected to operate sometime in 2015 with the purpose of fast response regulation.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1746,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1746/GRES\_Photo.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1746/thumb\_GRES\_Photo.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1746/partner\_GRES\_Photo.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":41.3308666,"longitude":-88.7081293,"master\_project\_id":null,"name":"Grand Ridge Energy Storage 31.5 MW","om\_contractor":"","organization":"","owner\_1":"Invenergy LLC.","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.invenergyllc.com/ProjectsbyCountry/UnitedStates/GrandRidgeEnergyStorage.aspx","primary\_reference1":"https://invenergyllc.com/news/invenergy-announces-start-of-commercial-operation-for-grand-ridge-energy-storage-expansion","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":31500,"size\_kwh":0.383333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":23.0,"state":"Illinois","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-25T23:22:19Z","updated\_at\_by\_admin":"2015-05-14T21:03:33Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"BYD Company","zip":""}},{"project":{"announcement\_on":"2022-01-21","approval\_status":2,"city":"Hamburg","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"thilo.resenhoeft@bosch.com","contact\_info\_visible":false,"contact\_name":"Thilo Resenhoeft","contact\_phone":"+49 711 811-7088","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2015-03-13T05:57:35Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Bosch is supplying a flexible energy storage system for frequency regulation and to keep the grid stable. Using second life batteries of EV, the project is bringing Bosch, the BMW Group, and Vattenfall together to drive progress on electromobility and power storages by interconnecting used batteries from electric vehicles to form a large-scale energy storage system in Hamburg. Bosch designs and builds the system, comprising a 2 MW / 2MWh lithium-ion battery.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1747,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1747/Bosch\_Second\_Life.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1747/thumb\_Bosch\_Second\_Life.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1747/partner\_Bosch\_Second\_Life.jpg"}},"integrator\_company":"Robert Bosch GmbH","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":53.5510846,"longitude":9.9936818,"master\_project\_id":null,"name":"Bosch Second Life Batteries","om\_contractor":"","organization":null,"owner\_1":"Vattenfall GmbH","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.bosch-presse.de/presseforum/details.htm?txtID=7067&tk\_id=107","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Hamburg","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-27T21:06:12Z","updated\_at\_by\_admin":"2015-04-01T22:28:07Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"BMW AG","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Reick","commissioning\_on":"2022-03-17","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Germany","contact\_email":"Tilman\_Werner@drewag.de","contact\_info\_visible":false,"contact\_name":"Dr. Tilman Werner","contact\_phone":"(0351) 8 60 41 92","contact\_state":"Dresden","contact\_street\_address":"Rosenstrasse 32","contact\_zip":"01067","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2015-04-01T23:23:42Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"DREWAG is operating its first commercial batteries at its thermal power station in Dresden-Reick. This innovative pilot and demonstration project hopes to act as a foundation for the development of future battery storage systems. With the increasing expansion of volatile renewable energy, battery storage can ensure performance and stability of power systems. ","developer":"","electronics\_provider":"Nidec ASI GmbH","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"Federal/National","funding\_source\_3":"","funding\_source\_details\_1":"European Regional Development Fund (ERDF)","funding\_source\_details\_2":"Free State of Saxony","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1749,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1749/DREWAG.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1749/thumb\_DREWAG.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1749/partner\_DREWAG.jpg"}},"integrator\_company":"Nidec ASI GmbH","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.015794,"longitude":13.787011,"master\_project\_id":null,"name":"DREWAG Reick 2 MW Pilot","om\_contractor":"Nidec ASI GmbH","organization":"","owner\_1":"DREWAG","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":">6,000 full load cycles","primary\_reference":"http://www.drewag.de/de/drewag/neue-energien/batteriespeicher.php","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":2000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Dresden","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T23:43:26Z","updated\_at\_by\_admin":"2015-10-26T17:42:56Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"State/Municipal Owned","vendor\_company":"LG Chem","zip":""}},{"project":{"announcement\_on":"2022-04-06","approval\_status":2,"city":"Anchorage","commissioning\_on":null,"companion":"Electro-chemical battery","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"nickerson@beaconpower.com","contact\_info\_visible":false,"contact\_name":"Dave Nickerson","contact\_phone":"978-661-2029","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-04-06T20:56:56Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Chugach is seeking to maintain its ability to control frquency as non-dispatchable resources are added to the grid. The multi stage (or hybrid) energy storage system consists of a fast-response, high-cycle, short-duration Beacon flywheel energy storage system (FESS) and a lower cycle life, longer duration battery energy storage system (BESS). \r\n\r\nThe FESS provides first stage response to any grid instabilities (i.e. frequency and ramp rate control) while the BESS is a second stage response if more energy is needed, to assist in avoiding resource curtailment, andto improve the predictability of output. Combining the two technologies has the added benefit of significantly increasing the life of the BESS by reducing its cycle duty while the FESS manages rapid response cycling.\r\n\r\nThe project will create a hybrid control system that will allow Chugach to maximize the hybrid storage system's performance and minimize life cycle costs.","developer":"Chugach Electric Association","electronics\_provider":"Beacon Power, LLC (for FESS)","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Alaska Energy Authority Emerging Energy Technology Fund","funding\_source\_details\_2":"Chugach Electric Association","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1750,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1750/Beacon\_Flywheel.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1750/thumb\_Beacon\_Flywheel.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1750/partner\_Beacon\_Flywheel.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":61.1688233,"longitude":-149.9106884,"master\_project\_id":null,"name":"Chugach Multi-Stage Energy Storage System (MS-ESS)","om\_contractor":"","organization":null,"owner\_1":"Chugash Electric Association","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.akenergyauthority.org/Content/Programs/EETF/Documents/Round\_2/Multi-Stage%20Flywheel-Battery%20Energy%20Storage%20System.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"University of Alaska Fairbanks, Alaska","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":320,"size\_kwh":0.0833333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":5.0,"state":"Alaska","status":"Contracted","street\_address":"5601 Electron Drive","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2015-05-05T18:52:09Z","updated\_at\_by\_admin":"2015-04-09T00:47:27Z","updated\_by":null,"updated\_by\_email":null,"utility":"Chugach Electric Association","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Beacon Power, LLC","zip":""}},{"project":{"announcement\_on":"2022-03-26","approval\_status":1,"city":"Rhode","commissioning\_on":null,"companion":"Electro-chemical battery - TBD","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"nickerson@beaconpower.com","contact\_info\_visible":false,"contact\_name":"Dave Nickerson","contact\_phone":"978-661-2029","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Ireland","created\_at":"2015-04-06T21:01:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This flywheel energy storage plant (4 x 150 kW units) will connect to the 110kV electrical grid to demonstrate the provision of fast acting stabilization system services required by the Transmission System Services, Eirgrid. Battery technology will be integrated to produce an innovative hybrid system connected to the electrical grid to provide further system services. In the second phase of the project additional storage units will be installed to provide 20 MW of system support capability and 2 MWh of dynamic energy storage.\r\n\r\nThis innovative project is currently at the final stages of evaluation for EU funding under the Horizon 2020 program, it will facilitate integration of non-synchronous generators (wind) thereby reducing carbon emissions.","developer":"Schwungrad Energie","electronics\_provider":"Beacon Power, LLC (for FESS)","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1751,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1751/Beacon\_Flywheel.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1751/thumb\_Beacon\_Flywheel.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1751/partner\_Beacon\_Flywheel.jpg"}},"integrator\_company":"TBD","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":53.3499888,"longitude":-7.1989629,"master\_project\_id":null,"name":"Rhode Hybrid Flywheel Energy Storage Plant - Schwungrad Energie","om\_contractor":"","organization":"Beacon Power, LLC","owner\_1":"Schwungrad Energie","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://schwungrad-energie.com/projects/rhode-hybrid-test-facility/","primary\_reference1":"http://beaconpower.com/wp-content/uploads/2015/05/First-Hybrid-Flywheel-Energy-Storage-Plant-in-Europe-announced-in-Ireland.pdf","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"University of Limerick","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":320,"size\_kwh":0.0833333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":5.0,"state":"Offaly","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2018-01-06T07:22:47Z","updated\_at\_by\_admin":"2015-04-09T00:46:56Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"ESB Networks Ltd","utility\_type":"State/Municipal Owned","vendor\_company":"Beacon Power, LLC","zip":""}},{"project":{"announcement\_on":"2022-06-01","approval\_status":1,"city":"Etten-Leur","commissioning\_on":"2022-09-03","companion":"Residential PV","construction\_on":"2022-03-01","contact\_city":"'s-Hertogenbosch","contact\_country":"Netherlands","contact\_email":"Robert.de.Groot@enexis.nl","contact\_info\_visible":false,"contact\_name":"Robert de Groot","contact\_phone":"+31 6 15419105","contact\_state":"NBr","contact\_street\_address":"Postbus 856","contact\_zip":"5201 AW","contractor\_1":"EMPEQ","contractor\_2":"TBI Alfen","contractor\_3":"Technolution","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Netherlands","created\_at":"2015-04-10T11:32:30Z","created\_by\_id":319,"debt\_investor":"","decommissioning\_on":null,"desc":"Distribution-level storage system installed in a residential area with high penetration of PV. PV generation may exceed the load during daytime, leading to reverse power flow in the distribution transformer. System is used by the owner, distribution network operator Enexis, to test charge/discharge algorithms and evaluate the effect on network losses, voltage profiles etc. The system will automatically transfer to islanded mode in case of a grid fault, and automatically transfer back. The concrete housing of the system is located 50% below ground level to reduce its visual impact in a residential area.","developer":"Enexis","electronics\_provider":"EMPEQ","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party RD&amp;D","funding\_source\_2":"Federal/National Grant","funding\_source\_3":"","funding\_source\_details\_1":"Enexis R&amp;D budget","funding\_source\_details\_2":"National energy innovation programme","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1752,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"TBI Alfen","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.5922561,"longitude":4.6481138,"master\_project\_id":null,"name":"Etten-Leur Smart Storage - Enexis","om\_contractor":"TBI Alfen","organization":"Enexis","owner\_1":"Enexis","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":1.0,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.enexis.nl/zakelijk/nieuws/enexis-installeert-smart-storage-unit-in-etten-leur","primary\_reference1":"","projected\_lifetime":"4.0","rdd\_status":"Yes","research\_desc":"development of control algorithms for distribution-level energy storage","research\_institution":"Eindhoven University ofg Technology","research\_institution\_link":"http://www.tue.nl/universiteit/faculteiten/electrical-engineering/","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Distribution upgrade due to solar","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":400,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"NBr","status":"Operational","street\_address":"Zandschel","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-05T01:55:55Z","updated\_at\_by\_admin":"2015-04-15T20:42:52Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Enexis","utility\_type":"State/Municipal Owned","vendor\_company":"Saft","zip":"4871 JS"}},{"project":{"announcement\_on":"2022-04-15","approval\_status":2,"city":"La Jolla","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"wtorre@ucsd.edu","contact\_info\_visible":false,"contact\_name":"William Torre","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-04-15T20:29:43Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"To further increase the value of UCSD's microgrid at Scripps Institution of Oceanography, storage systems serve to smooth over the intermittent nature of solar generation, storing the power for targeted use, particularly for electric vehicle (EV) charging, as well as storing cheap grid energy for use during expensive on-peak hours. Sunverge Solar Integration System (SIS) is an intelligent distributed energy storage system that captures solar power and delivers it when needed most.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1754,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1754/Sunverge.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1754/thumb\_Sunverge.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1754/partner\_Sunverge.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":32.8807318,"longitude":-117.2401999,"master\_project\_id":"189:263:286:1257","name":"UCSD Sunverge 10 kW","om\_contractor":"","organization":null,"owner\_1":"UCSD","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.biocycle.net/2014/07/16/symphony-of-the-microgrid-at-an-urban-university/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"9500 Gilman Drive","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium Polymer Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-05-05T18:51:28Z","updated\_at\_by\_admin":"2015-04-15T21:15:05Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"92093"}},{"project":{"announcement\_on":"2022-04-15","approval\_status":2,"city":"La Jolla","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"wtorre@ucsd.edu","contact\_info\_visible":false,"contact\_name":"William Torre","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-04-15T20:29:43Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"UC San Diego operates a cogeneration facility that supplies approximately 88% of the campus's electricity. In addition to saving approximately $8 million per year in purchased utilities costs, cogeneration reduces: \r\n- Energy losses due to transmission and distribution of electricity over the statewide electrical grid\r\n- Reliance on out-of-state coal-burning power generation\r\n- Regional congestion on SDGE's grid system.\r\nThe 27 MW combined cooling heat and power plant and 3.4-million-gallon thermal storage system are part of UCSD's state-of-the-art microgrid.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1755,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1755/UCSD\_Thermal\_Tank.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1755/thumb\_UCSD\_Thermal\_Tank.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1755/partner\_UCSD\_Thermal\_Tank.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":32.8807318,"longitude":-117.2401999,"master\_project\_id":"189:263:286:1257","name":"UCSD Thermal Storage Tank","om\_contractor":"","organization":null,"owner\_1":"UCSD","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://ssi.ucsd.edu/index.php?option=com\_content&amp;view=article&amp;id=416:smart-power-generation-at-ucsd-november-1-2010&amp;catid=8:newsflash&amp;Itemid=20","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":4000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"9500 Gilman Drive","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2015-05-05T18:34:30Z","updated\_at\_by\_admin":"2015-04-15T21:24:02Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"","zip":"92093"}},{"project":{"announcement\_on":"2022-04-15","approval\_status":2,"city":"La Jolla","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"wtorre@ucsd.edu","contact\_info\_visible":false,"contact\_name":"William Torre","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-04-15T20:29:43Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"25 kW / 40 kWh Amber Kinetics, Flywheel energy storage currently in design to be operational in 2015.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1756,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1756/Amber\_Kinetics.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1756/thumb\_Amber\_Kinetics.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1756/partner\_Amber\_Kinetics.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.8807318,"longitude":-117.2401999,"master\_project\_id":null,"name":"UCSD Amber Kinetics 40 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302-632-5520","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Solarrus","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-04-15T20:29:44Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The system includes 60 kW / 100 kWh Li-ion, PV integrated energy storage with EV DC Fast Charging. EVgo, Kisensum, and EVGrid have created a demand management solution for EVgo's network of DC Fast Chargers. The first site went live in June 2016 at the UC San Diego Campus. This solution comprises two (2) 25 kWh battery systems from EVGrid, two (2) charging pedestals from ABB, a controller from Kisensum and a 12 kW solar canopy. The graph below illustrates how the Kisensum controller manages the loads and energy resources to keep peak demand below a target threshold in order to avoid costly demand charges. \r\n\r\nThe control system has been designed by Kisensum, and is designed to optimize the harvesting of PV solar generation and charging/discharging of energy storage and dispatching power to the DC fast chargers.\r\n\r\nThe EVgo project explores how incorporating energy storage with Level 3 EV charging infrastructure can reduce the cost of developing, constructing, and operating public stations in order to make charging accessible and affordable to all EV drives. The site is a model for future public charging facilities by leveraging second-life batteries, solar generation, and intelligent site control.","developer":"NRG / EVgo Service, LLC","electronics\_provider":"Ideal power","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1758,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1758/ucsd\_evgo.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1758/thumb\_ucsd\_evgo.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1758/partner\_ucsd\_evgo.jpg"}},"integrator\_company":"Kisensum","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.8753618,"longitude":-117.2358622,"master\_project\_id":null,"name":"UCSD EV Smart Chrarging with Energy Storage","om\_contractor":"","organization":null,"owner\_1":"UC San Diego","owner\_2":"EVgo Services, LLC","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"A before and after comparison of the power profile reveals peak demand reduced from 90kW to less than 20kW per month. This is the equivalent to a reduction from $2,970 to $660 in SDG&E demand charges, a savings of 78% per month.","primary\_reference":"https://www.nrgevgo.com/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_5":"Transportation Services","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":60,"size\_kwh":1.66666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":40.0,"state":"California","status":"Operational","street\_address":"9500 Gilman Drive, #0417","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-02T21:49:20Z","updated\_at\_by\_admin":"2016-08-02T21:49:20Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"","vendor\_company":"EVGrid","zip":"92093"}},{"project":{"announcement\_on":"2022-04-15","approval\_status":0,"city":"La Jolla","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"wtorre@ucsd.edu","contact\_info\_visible":false,"contact\_name":"William Torre","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-04-15T20:29:44Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"730 kW, 1460 kWh SGIP PV Integrated, five off-campus sites. Future planned projects","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1759,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.8807318,"longitude":-117.2401999,"master\_project\_id":null,"name":"UCSD SGIP PV Projects","om\_contractor":"","organization":null,"owner\_1":"UCSD","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://cer.ucsd.edu/\_files/energy-storage-ppt","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":730,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"California","status":"Announced","street\_address":"9500 Gilman 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Hill","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Australia","contact\_email":"john.micheloudakis@zecoenergy.com.au","contact\_info\_visible":true,"contact\_name":"John","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":100000.0,"cost\_OPEX":null,"country":"Australia","created\_at":"2015-05-21T06:52:04Z","created\_by\_id":332,"debt\_investor":"","decommissioning\_on":null,"desc":"An off-grid application of a 33 KW / 40 KWh BYD lithium ESS installed by ZECO energy.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party 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The island of Tilos is currently supplied with oil-based generated electricity via an undersea cable from the island of Kos. Its annual electricity consumption is in the order of 3 GWh and its peak demand, during summetime, reaches approximately 1 MW. The existence of the undersea cable allows for the investigation of the interplay between an interconnector and energy storage, and of energy trade strategies between a smart microgrid (Tilos island) and a macrogrid (the electricity system of Kos). \r\n\r\nIn this context, the main objective of TILOS is the development and operation of a prototype battery storage system, based on NaNiCl2 batteries, that will be provided with a smart grid control system and that will cope with the challenge of supporting multiple tasks. These tasks range from microgrid energy management, maximization of RES penetration and grid stability, to export of guaranteed energy and provision of ancillary services to the main grid of Kos. The battery system will support both grid-forming (stand-alone microgrid) and grid-following (microgrid coupled with the main grid) operation and will also prove its interoperability with the rest of microgrid components, including centralized RES (800 kW wind turbine and 160 kW PV power), demand side management (DSM), and distributed, residential heat storage in the form of domestic hot water.\r\n","developer":"","electronics\_provider":"Indrivetec AG","energy\_management\_software\_provider":"Younicos","funding\_amount\_1":11000000.0,"funding\_amount\_2":4000000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"Private/Third Party","funding\_source\_3":"","funding\_source\_details\_1":"European Commission - Horizon 2020 Framework","funding\_source\_details\_2":"Industrial Partners of the TILOS project","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1763,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1763/tilos.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1763/thumb\_tilos.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1763/partner\_tilos.JPG"}},"integrator\_company":"EUNICE Laboratories SA","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":36.4230663,"longitude":27.3733989,"master\_project\_id":null,"name":"TILOS (Technology Innovation for the Local Scale Optimum Integration of Battery Energy Storage)","om\_contractor":"","organization":"","owner\_1":"TILOS consortium partners","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.tiloshorizon.eu/","primary\_reference1":"http://www.tilos.gr/","projected\_lifetime":"15.0","rdd\_status":"Yes","research\_desc":"","research\_institution":"Piraeus University of Applied Sciences - Laboratory of Soft Energy Applications (Project Coordinator for a consortium of 13 partners, see also project weblink)","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"Ramping ","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":800,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Prefecture of Dodecanese, Aegean Sea","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-11T22:07:17Z","updated\_at\_by\_admin":"2016-08-11T22:07:17Z","updated\_by":null,"updated\_by\_email":null,"utility":"Hellenic Electricity Distribution Network Operator S.A.","utility\_type":"Public Owned","vendor\_company":"FIAMM Energy Storage Solutions SRL","zip":""}},{"project":{"announcement\_on":"2022-07-16","approval\_status":1,"city":"Buninyong","commissioning\_on":"2022-04-08","companion":"22kV, 480VAC, 50Hz Distribution line","construction\_on":null,"contact\_city":"","contact\_country":"Australia","contact\_email":"wstapleton@powercor.com.au; joel@kokam.com","contact\_info\_visible":false,"contact\_name":"Warrick Stapleton; Joel Yang","contact\_phone":"+61392367093; 82 313 620 1136","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2015-06-15T05:18:53Z","created\_by\_id":337,"debt\_investor":"","decommissioning\_on":null,"desc":"Powercor Australia, a Victoria-based utility, has installed a 2.2 MWh lithium-ion battery system in Buninyong, along one of the main powerlines that services 6,400 customers in the area. Equivalent to 20% of the current powerline's capacity, the battery will increase the bandwidth of the network on peak demand days and perform transmission support, ancillary services, and capacity.\r\n\r\nThe battery is housed in a 40 foot shipping container and is capable of providing back-up power to approximately 3,000 customers for an hour during a power outage.\r\n\r\nhttps://www.powercor.com.au/","developer":"Powercor Australia","electronics\_provider":"S&C Electric","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1764,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1764/Kokam\_Buninyong\_2.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1764/thumb\_Kokam\_Buninyong\_2.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1764/partner\_Kokam\_Buninyong\_2.png"}},"integrator\_company":"S&C Electric","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-37.6484069,"longitude":143.8845762,"master\_project\_id":null,"name":"Powercor 2 MW Grid Scale Energy Storage - Kokam","om\_contractor":"S&C Electric","organization":"","owner\_1":"Powercor","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://reneweconomy.com.au/2015/powercor-to-add-australias-biggest-battery-storage-to-regional-grid-56372","primary\_reference1":"http://kokam.com/australias-largest-battery-bound-for-buninyong/","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Resiliency","service\_use\_case\_6":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_7":"Transmission Congestion Relief","service\_use\_case\_8":"Transmission Support","service\_use\_case\_9":"Voltage Support","siting":"Primary Distribution","size\_kw":2000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Victoria","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T23:41:46Z","updated\_at\_by\_admin":"2016-06-07T00:21:44Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Powercor Australia Ltd","utility\_type":"Investor Owned","vendor\_company":"Kokam","zip":"3357"}},{"project":{"announcement\_on":"2022-01-10","approval\_status":1,"city":"Le Francois","commissioning\_on":"2022-05-27","companion":"","construction\_on":"2022-07-30","contact\_city":"","contact\_country":"","contact\_email":"chouiter.m@energie.mq","contact\_info\_visible":false,"contact\_name":"Mael Chouiter","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":290000.0,"cost\_OPEX":null,"country":"Martinique","created\_at":"2015-06-16T15:19:01Z","created\_by\_id":339,"debt\_investor":"","decommissioning\_on":null,"desc":"ALTAIS project, lead by AME and the CEA-INES offer a demonstration platform - in Le François - which aggregates the assets of new generation typical grids in Islands: PV production, battery energy storage, consumption, information and software solutions to gradually manage these assets.\r\nThe main goal of this project is to find a sustainable solution in order to reach more than 30% of renewable energy on our grid. Storage solutions seem to be the good way to produce a non-intermittent energy and also provide ancillary services to the grid.\r\nALTAIS is one the first R&D storage large scale project in the French West Indies and can become a reference for the future storage installations (specifications, studies, reglementation, installation, recycling issues…).\r\n","developer":"","electronics\_provider":"NIDEC ASI","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"State/Provincial/Regional RD&D","funding\_source\_3":"","funding\_source\_details\_1":"ADEME","funding\_source\_details\_2":"SMEM","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1765,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1765/IMG\_0790.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1765/thumb\_IMG\_0790.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1765/partner\_IMG\_0790.JPG"}},"integrator\_company":"NIDEC ASI","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":14.6207053,"longitude":-60.9019536,"master\_project\_id":null,"name":"Le Francois ALTAIS Project","om\_contractor":"","organization":"Agence Martiniquaise de l'Energie","owner\_1":"Agence Martiniquaise de l'Energie","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://cm2e.energie.mq/wp-content/uploads/2014/06/PROGRAMME-ALTAIS\_CM2E\_Mai-2014\_anglais.pdf","primary\_reference1":"","projected\_lifetime":"5.0","rdd\_status":"No","research\_desc":"","research\_institution":"CEA-INES","research\_institution\_link":"http://www.ines-solaire.org/","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Electric Supply Capacity","service\_use\_case\_5":"Load Following (Tertiary Balancing)","service\_use\_case\_6":"Microgrid Capability","service\_use\_case\_7":"On-Site Power","service\_use\_case\_8":"Renewables Energy Time Shift","service\_use\_case\_9":"Voltage Support","siting":"","size\_kw":120,"size\_kwh":1.66666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":40.0,"state":"Martinique","status":"Operational","street\_address":"Pointe courchet","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-17T04:44:35Z","updated\_at\_by\_admin":"2015-10-26T20:49:48Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"FIAMM SPA","zip":" 97240"}},{"project":{"announcement\_on":"2022-04-20","approval\_status":0,"city":"Hamilton","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Broomfield","contact\_country":"United States","contact\_email":"storage@res-americas.com","contact\_info\_visible":true,"contact\_name":"","contact\_phone":"303-439-4200","contact\_state":"Colorado","contact\_street\_address":"11101 W. 120th Ave., Suite 400","contact\_zip":"80021","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-06-17T03:16:53Z","created\_by\_id":338,"debt\_investor":"","decommissioning\_on":null,"desc":"The 6 MW/ 2.02 MWh Willey Battery Storage project will be used to provide frequency regulation service to PJM, the largest grid operator in North America. The monitoring, dispatch and control of the system will be handled by the RESolve energy storage platform, a proprietary technology developed by RES Americas. RESolve will manage the system for maximizing revenue while minimizing battery degradation.","developer":"RES Americas","electronics\_provider":"Parker Hannifin","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Sumitomo Corporation Group","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1766,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1766/stockes\_underconstruction.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1766/thumb\_stockes\_underconstruction.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1766/partner\_stockes\_underconstruction.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.3995008,"longitude":-84.5613355,"master\_project\_id":null,"name":"Willey Energy Storage Project","om\_contractor":"","organization":null,"owner\_1":"Sumitomo Corporation Group","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.res-americas.com/en/news-events/press-releases/current/res-announces-ohio-energy-storage-project","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":6000,"size\_kwh":0.336666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":20.2,"state":"Ohio","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-06-18T21:21:05Z","updated\_at\_by\_admin":"2015-06-18T19:57:42Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Toshiba","zip":""}},{"project":{"announcement\_on":"2022-06-12","approval\_status":1,"city":"Yeongheng-myeon, Ongjin-gun","commissioning\_on":null,"companion":"46 MW Wind","construction\_on":"2022-06-01","contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Bo Powertech","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2015-06-22T01:06:53Z","created\_by\_id":342,"debt\_investor":"","decommissioning\_on":null,"desc":"KOSEP applies ESS for renewable integration. ESS charges energy that is generated by wind farm and discharges energy at peak-time. By this process, ESS contributes Energy Supply at peak-time and provides additional economical benefits to KOSEP by REC. PCS and PMS is provided by Hyosung Corporation and Battery is provided by LG Chem.","developer":"","electronics\_provider":"Hyosung Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":null,"hidden":false,"id":1767,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.249147,"longitude":126.45745,"master\_project\_id":null,"name":"Yeongheung Wind-Farm Energy Storage System","om\_contractor":"","organization":"N/A","owner\_1":"Korea South-East Power Co. (KOSEP)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.etnews.com/20150615000244","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":4000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Incheon","status":"Operational","street\_address":"1345, Oe 1-re","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-27T02:54:44Z","updated\_at\_by\_admin":"2015-07-07T02:23:23Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Korea South-East Power Co. (KOSEP)","utility\_type":"Federally Owned","vendor\_company":"LG Chem","zip":""}},{"project":{"announcement\_on":"2022-05-26","approval\_status":1,"city":"New Richmond","commissioning\_on":"2022-11-18","companion":"Retired Coal-Fired Power Plant","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"tammie.mcgee@duke-energy.com","contact\_info\_visible":true,"contact\_name":"Tammie McGee","contact\_phone":"+1 (980) 373-8812","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-06-26T19:57:37Z","created\_by\_id":338,"debt\_investor":"","decommissioning\_on":null,"desc":"Duke Energy, LG Chem and Greensmith have installed a battery-based energy storage system in Ohio, designed to enhance reliability and increase stability on the electric power grid. The new 2-megawatt (MW) storage project will assist in regulating electric grid frequency for PJM, the transmission organization that powers much of the eastern U.S. The system will be built at Duke Energy's retired W.C. Beckjord coal-fired power plant in New Richmond, Ohio. LG Chem provided the Ohio project’s integrated operating system, comprised of advanced lithium-ion batteries. Greensmith provided intelligent energy storage control and analytics software, and system integration services. Parker Hannifin provided a 2-MW power conversion inverter.\r\n\r\nWith the addition of the new project, the company will operate a total of 4 MW of energy storage at Beckjord, where a separate 2-MW storage system already exists.\r\n\r\n","developer":"Duke Energy","electronics\_provider":"Parker Hannifin","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1768,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1768/content\_beckjord\_station.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1768/thumb\_content\_beckjord\_station.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1768/partner\_content\_beckjord\_station.jpg"}},"integrator\_company":"Greensmith Energy Management Systems","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":38.9486757,"longitude":-84.2799366,"master\_project\_id":null,"name":"2 MW - W.C. Beckjord Retired Coal Plant - Duke Energy","om\_contractor":"","organization":"","owner\_1":"Duke Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.duke-energy.com/our-company/about-us/power-plants/w-c-beckjord-station","primary\_reference1":"http://www.prnewswire.com/news-releases/batteries-spring-to-life-at-retired-duke-energy-coal-plant-300180985.html","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Ohio","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T23:38:46Z","updated\_at\_by\_admin":"2015-12-18T19:55:59Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Duke Energy","utility\_type":"Investor Owned","vendor\_company":"LG Chem ","zip":"45157"}},{"project":{"announcement\_on":"2022-02-18","approval\_status":1,"city":"Colville Lake","commissioning\_on":"2022-06-01","companion":"Power Plant, Solar, Diesel","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jill.ledger@saftbatteries.com","contact\_info\_visible":true,"contact\_name":"Jill Ledger","contact\_phone":"33 1 49 93 17 77","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2015-06-30T20:33:35Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"While the system is capable of producing at 232 kwh it is rated at 1100 kw. \r\n\r\nSaft’s innovative “Cold Temperature Package” design allows for a complete BESS system in an ISO 20-foot container that withstands extreme arctic environments down to -50°C. As part of the contract, Saft will develop and install one Intensium® Max 20M Medium Power (IM 20M) Li-ion battery container with 232kWh of energy and a 200kW Power Conditioning System from ABB. The turnkey BESS will serve as the heart of the hybrid micro-grid that is part of a larger Solar and Diesel upgrade to the existing power plant.\r\n\r\nThe system will be installed at the Colville Lake Power Station in June 2015 and will provide Colville Lake residents with consistent, renewable solar power and reduced diesel fuel consumption. Colville Lake is a remote, small community of about 150 inhabitants with temperatures that can drop to -50°C in winter and reach 35°C in summer. Currently, the community experiences a high incidence of power outages. The community can only be reached by road during a six-week period in February through March, when northern ice-roads are in use. Otherwise, it is accessed by flights. As such, the system was completed within a strict timeframe and delivered to Edmonton, where it is awaiting the final trek across the ice-roads when they are reopened.\r\n","developer":"","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1769,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":67.0386393,"longitude":-126.0881066,"master\_project\_id":null,"name":"Saft 232 kWh BESS Arctic Circle","om\_contractor":"","organization":"SAFT","owner\_1":"Northwest Territories Power Corporation (NPTC)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.businesswire.com/news/home/20150218006295/en/Saft-Lithium-Ion-Battery-Energy-Storage-System-Harnesses#.VZLy6RNVikq","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1100,"size\_kwh":0.216666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":13.0,"state":"Northwest Territories","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:36:16Z","updated\_at\_by\_admin":"2015-06-30T20:39:56Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Northwest Territories Power Corporation (NTPC)","utility\_type":"Public Owned","vendor\_company":"SAFT","zip":""}},{"project":{"announcement\_on":"2022-04-07","approval\_status":1,"city":"Kathu","commissioning\_on":null,"companion":"CSP","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"gdfsuezpress@gdfsuez.com","contact\_info\_visible":true,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Acciona","contractor\_2":"Sener","contractor\_3":"","cost\_CAPEX":553142000.0,"cost\_OPEX":null,"country":"South Africa","created\_at":"2015-07-01T22:40:24Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"A consortium of Acciona and Sener has won a contract for turnkey delivery of the 100MW Kathu solar thermal plant in Northern Cape.\r\n\r\nThe project is being developed by GDF Suez and South African partners under the nation’s Renewable Energy Independent Power Producer programme. Total investment is expected to be more than €500m.\r\n\r\nKathu will feature Sener parabolic troughs and a molten salt-based thermal energy storage capacity of 4.5 hours. It is slated to begin operations in 2018.\r\n\r\nAcciona and Sener will carry out the engineering, construction and commissioning of the entire facility and use local suppliers.","developer":"GDF Suez","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Department of Energy, Renewabe Energy Independent Power Producer Procurment Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1770,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-27.7,"longitude":23.05,"master\_project\_id":null,"name":"Kathu 100 MW Solar Thermal Park","om\_contractor":"","organization":null,"owner\_1":"Consortium (Sishen Iron Ore Company Community Development Trust, Investec Bank, lereko Metier and Public Investment Corporation","owner\_2":"GDF Suez","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":51.0,"ownership\_percentage\_2":49.0,"performance":"N/A","primary\_reference":"http://renews.biz/86677/acciona-to-build-100mw-kathu/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":100000,"size\_kwh":4.5,"size\_kwh\_hours":4,"size\_kwh\_minutes":30.0,"state":"Northern Cape","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2015-07-01T22:46:16Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Eskom Holdings","utility\_type":"","vendor\_company":"Sener","zip":""}},{"project":{"announcement\_on":"2022-02-02","approval\_status":1,"city":"Dublin","commissioning\_on":"2022-02-27","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@megamicro.org","contact\_info\_visible":false,"contact\_name":"Dudley Stewart, Chief Engineer, Tallaght Smart Grid Test Bed","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Ireland","created\_at":"2015-07-02T00:01:29Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"Ireland intends to achieve 40 percent renewable energy by 2020. Most of this electricity comes from large-scale wind farms with only limited connection to the UK. FREQCON deployed Ireland's first combined ultracapacitor & energy storage facility for the Tallaght Smart Grid Testbed in South Dublin County. The 300 kW / 150 kWh system was developed to demonstrate that a combination of lithium-ion batteries, Maxwell Technologies ultracapacitors, and FREQCON power converters can deliver what is needed.","developer":"Freqcon GmbH","electronics\_provider":"Freqcon GmbH","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1771,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1771/ecoult-grid.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1771/thumb\_ecoult-grid.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1771/partner\_ecoult-grid.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":53.3498053,"longitude":-6.2603097,"master\_project\_id":"---\n- '1772'\n","name":"Tallaght Smart Grid Testbed: Lithium Ion Battery","om\_contractor":"","organization":"","owner\_1":"Micro Electricity Generation Association Of Ireland","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.intallaght.ie/tallaght-first-location-in-europe-to-test-out-new-smart-energy/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"Voltage Support","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":300,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Leinster","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-07T04:38:49Z","updated\_at\_by\_admin":"2015-08-22T01:22:15Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Local Authority - South Dublin County Council","utility\_type":"State/Municipal Owned","vendor\_company":"Ecoult","zip":""}},{"project":{"announcement\_on":"2022-02-02","approval\_status":2,"city":"Dublin","commissioning\_on":"2022-02-27","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@megamicro.org","contact\_info\_visible":false,"contact\_name":"Dudley Stewart","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Ireland","created\_at":"2015-07-02T00:03:26Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"Ireland intends to achieve 40 percent renewable energy by 2020. Most of this electricity comes from large-scale wind farms with only limited connection to the UK. FREQCON deployed Ireland's first combined ultracapacitor & energy storage facility for the Tallaght Smart Grid Testbed in South Dublin County. The 300 kW / 150 kWh system was developed to demonstrate that a combination of lithium-ion batteries, Maxwell Technologies ultracapacitors, and FREQCON power converters can deliver what is needed. \r\n","developer":"Freqcon GmbH","electronics\_provider":"Freqcon GmbH","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1772,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":53.3498053,"longitude":-6.2603097,"master\_project\_id":"1771","name":"Tallaght Smart Grid Testbed: Ultracapacitors","om\_contractor":"Micro Electricity Generation Association (MEGA)","organization":null,"owner\_1":"Micro Electricity Generation Association Of Ireland","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.prnewswire.com/news-releases/maxwell-technologies-ultracapacitors-deployed-in-ireland-microgrid-energy-storage-system-300037291.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"Voltage Support","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Leinster","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical Capacitor","technology\_type\_l1":"Electro-chemical Capacitor","technology\_type\_l2":"Electro-chemical Capacitor","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-08-22T01:22:28Z","updated\_at\_by\_admin":"2015-08-22T01:22:28Z","updated\_by":null,"updated\_by\_email":null,"utility":"Local Authority - South Dublin County Council","utility\_type":"State/Municipal Owned","vendor\_company":"Maxwell Technologies","zip":""}},{"project":{"announcement\_on":"2022-02-18","approval\_status":1,"city":"Niijima, Izu Island","commissioning\_on":null,"companion":"Diesel generators, solar panels and wind turbines","construction\_on":"2022-02-18","contact\_city":"","contact\_country":"","contact\_email":"info@wash.tepco.com ","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Sumitomo Corporation","contractor\_2":"Saft Hong Kong Limited","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2015-07-02T22:13:02Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"Tokyo Electric Power Company (TEPCO) will conduct a microgrid demonstration project on a remote Japanese island, incorporating solar, storage, wind and diesel.\r\n\r\nSaft has been awarded its first energy storage system contract in Japan to supply a containerized 520 kWh/1 MW lithium-ion battery system for the Niijima Island Microgrid project conducted by Takaoka Toko Co., Ltd. – a subsidiary of Tokyo Electric Power Company (TEPCO). The demonstration project will comprise diesel generators, solar panels and wind power installations working in various combinations to optimize the usage of renewable energy resource.\r\n\r\nThe battery will operate in combination with Takaoka-Toko’s intelligent control system that enables large amounts of wind and other renewable energy based power to be integrated into diesel powered grids, ensuring system stability and smooth control of the gensets. The program will investigate the use of energy storage for various applications in the microgrid setting.","developer":"Takaoka Toko Ltd","electronics\_provider":"Takaoka Toko Ltd","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1773,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1773/Fotolia\_68098948\_Subscription\_CP.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1773/thumb\_Fotolia\_68098948\_Subscription\_CP.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1773/partner\_Fotolia\_68098948\_Subscription\_CP.jpg"}},"integrator\_company":"Takaoka Toko Ltd","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.3746494,"longitude":139.268936,"master\_project\_id":null,"name":"Niijima Island Microgrid - Takaoka Toko Ltd","om\_contractor":"","organization":"TEPCO","owner\_1":"Takaoka Toko Ltd. (a subsidiary of Tokyo Electric Power Company)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.businesswire.com/news/home/20150218006292/en/Saft%E2%80%99s-Intensium%C2%AE-Max-20-Li-ion-Energy-Storage","primary\_reference1":"","projected\_lifetime":"5.0","rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Ramping ","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.516666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":31.0,"state":"Tokyo Prefecture","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:18:48Z","updated\_at\_by\_admin":"2015-07-02T22:16:48Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Tokyo Electric Power Company","utility\_type":"Federally Owned","vendor\_company":"SAFT","zip":""}},{"project":{"announcement\_on":"2022-06-05","approval\_status":1,"city":"Indianapolis","commissioning\_on":"2022-05-20","companion":"Harding Street Thermal Generation Station facility rated at 79.2 MVA gross, composed of two existing combustion turbine generators rated at 29.6 MVA each and designated as black start resources","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"mediainquiries@aes.com; brian.perusse@aes.com","contact\_info\_visible":false,"contact\_name":"AES Corporation; Brian Perusse","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Casteel Corporation","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-07-06T21:45:07Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"The IPL Advancion Array provides 20 megawatts (MW) of interconnected energy storage equivalent to 40 MW of flexible resource with unmatched operational flexibility. The facility will lower emissions by enabling more efficient dispatch of existing generating assets and support the ongoing integration of renewable power sources. The IPL Array features Advancion pre-certified suppliers, including Samsung SDI and Parker Hannifin, and the balance of plant was provided by the Casteel Corporation.","developer":"Indianapolis Power & Light, an AES Company","electronics\_provider":"Parker Hannifin","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1774,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1774/IPL\_BES.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1774/thumb\_IPL\_BES.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1774/partner\_IPL\_BES.jpg"}},"integrator\_company":"AES Energy Storage","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"MISO","latitude":39.7113135,"longitude":-86.1903191,"master\_project\_id":null,"name":"IPL Advancion Energy Storage Array","om\_contractor":"","organization":"","owner\_1":"Indianapolis Power & Light, an AES Company ","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.iplpower.com/Blog/post.aspx?pid=2147487082","primary\_reference1":"http://aesenergystorage.com/2016/07/12/ipl-and-aes-leaders-officially-open-first-battery-based-energy-storage-in-miso-region-2/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":20000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Indiana","status":"Operational","street\_address":"3700 Harding St","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-26T04:56:26Z","updated\_at\_by\_admin":"2016-09-22T17:34:18Z","updated\_by":null,"updated\_by\_email":null,"utility":"Indianapolis Power & Light","utility\_type":"Investor Owned","vendor\_company":"Samsung SDI","zip":"46217"}},{"project":{"announcement\_on":"2022-03-03","approval\_status":1,"city":"Adelaide","commissioning\_on":null,"companion":"Solar PV","construction\_on":"2022-06-01","contact\_city":"","contact\_country":"","contact\_email":"john@impress.com.au","contact\_info\_visible":true,"contact\_name":"John Harris","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1000000.0,"cost\_OPEX":null,"country":"Australia","created\_at":"2015-07-07T19:38:23Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"Australian battery developer Redflow has sold a commercial-scale model of its zinc bromide flow energy storage system to Base64 who will couple it with an existing solar system on a renovated office complex in Adelaide, as part of longer term plans to take the office off-grid.\r\n\r\nThe battery system is contained in 20 foot (6m) box that will accommodate 60 ZBM3 battery modules providing up to 300kW and 660kWh of energy with a voltage output between 400V and 800V DC. Delivery and installation is expected in June 2015.\r\n\r\nRedflow said in a statement the system is scaleable and can be placed in series and/or parallel and powered from renewable energy sources such as solar.\r\n\r\nBase64 will use the $1 million storage system to store energy from its existing 20kW array of solar panels. Hackett says the system will allow a significant reduction in consumption from the grid, particularly in peak periods, and act as a back-up in power failures.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1775,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1775/redflow.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1775/thumb\_redflow.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1775/partner\_redflow.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-34.9286212,"longitude":138.5999594,"master\_project\_id":null,"name":"RedFlow 300 kW Adelaide","om\_contractor":"","organization":"Impress Media","owner\_1":"Base64","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://redflow.com/hackett-powers-ahead-redflow-base64/","primary\_reference1":"https://redflow.com/resources/hackett-household-powers-state-wide-blackout/#more-6804","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"On-Site Power","service\_use\_case\_5":"Onsite Renewable Generation Shifting","service\_use\_case\_6":"Renewables Capacity Firming","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":300,"size\_kwh":2.2,"size\_kwh\_hours":2,"size\_kwh\_minutes":12.0,"state":"South Australia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-07T04:08:20Z","updated\_at\_by\_admin":"2015-07-08T21:33:05Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Redflow","zip":""}},{"project":{"announcement\_on":"2022-02-25","approval\_status":1,"city":"Somerdale","commissioning\_on":"2022-02-25","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info.rdweb@hal.hitachi.com,","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Demansys Energy Inc.","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-07-07T21:39:39Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"Hitachi America, Ltd. and Demansys Energy, Inc. have commissioned a 1 MW Lithium-Ion energy storage facility utilizing Hitachi's \"CrystEna\" compact container-type energy storage system and have started a demonstration project in Somerdale, New Jersey.\r\n\r\nDemansys and Hitachi are performing a demonstration project utilizing Hitachi's CrystEna in the market for frequency regulation and capacity services. Demansys managed this demonstration project which involves the installation of a Hitachi CrystEna system in New Jersey, not far from Philadelphia. To verify the system's effectiveness for grid stabilization, the demonstration will collect data over a two year period, including a capacity pilot project with PJM Interconnection and frequency regulation operation in PJM, the USA's largest independent grid operator. \r\n\r\nThe demonstration has started to further evaluate energy storage systems and to verify system reliability and effectiveness with the aim to engage in a large deployment in the US ancillary services market.","developer":"Demansys Energy Inc.","electronics\_provider":"Hitachi","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1776,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1776/Hitachi\_CrystEna\_Somerdale.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1776/thumb\_Hitachi\_CrystEna\_Somerdale.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1776/partner\_Hitachi\_CrystEna\_Somerdale.jpg"}},"integrator\_company":"Hitachi","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.8440027,"longitude":-75.0226691,"master\_project\_id":null,"name":"CrystEna 1 MW Energy Storage System- Demansys Energy Inc.","om\_contractor":"","organization":"Hitachi R&D","owner\_1":"Demansys Energy Inc.","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.hitachi.com/New/cnews/month/2015/02/150226a.html","primary\_reference1":"","projected\_lifetime":"2.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.45,"size\_kwh\_hours":0,"size\_kwh\_minutes":27.0,"state":"New Jersey","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-08T03:23:09Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Hitachi","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Thomastown","commissioning\_on":"2022-12-01","companion":"1 MW Diesel Generator","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jonathon.geddes@ausnetservices.com.au","contact\_info\_visible":true,"contact\_name":"Jonathon Geddes","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2015-07-07T21:58:09Z","created\_by\_id":344,"debt\_investor":"","decommissioning\_on":null,"desc":"AusNet Services – in partnership with ABB Australia and Samsung SDI – is trialling a one megawatt (MW) ‘network’ battery to support the electricity grid during ‘peak demand’ periods. Commencing December 2014, the two-year trial centers on using a portable 1MW battery system to automatically provide local support into the 22 kV grid at peak demand periods and recharging during low demand periods. \r\n\r\nThe system also includes a 1 MW diesel generator as a secondary supply to extend supply for full coverage of the peak demand period. The system can also transition to island mode to provide power as part of a mini grid when parts of the network become isolated. The battery can operate at full power for one hour.\r\n\r\nhttp://www.abb.com/cawp/seitp202/8f29ecd390a62cd783257dcc000ac26f.aspx","developer":"AusNet Services","electronics\_provider":"ABB Australia","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1777,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1777/Screen\_Shot\_2015-07-07\_at\_1.24.48\_PM.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1777/thumb\_Screen\_Shot\_2015-07-07\_at\_1.24.48\_PM.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1777/partner\_Screen\_Shot\_2015-07-07\_at\_1.24.48\_PM.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-37.6811991,"longitude":145.0139331,"master\_project\_id":null,"name":"Thomastown Network 1 MW Lithium-ion Trial - AusNet Services","om\_contractor":"ABB Australia","organization":"","owner\_1":"AusNet Services","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.abb.com/cawp/seitp202/8f29ecd390a62cd783257dcc000ac26f.aspx","primary\_reference1":"http://www.abc.net.au/news/2015-01-07/ausnet-trialling-new-system-to-curb-power-outages-on-hot-days/6004454","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Victoria","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-08T03:10:19Z","updated\_at\_by\_admin":"2016-05-17T00:35:28Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"AusNet Services","utility\_type":"Investor Owned","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":"2022-05-10","approval\_status":2,"city":"Los Gatos","commissioning\_on":"2022-05-10","companion":"5.9kW PV","construction\_on":"2022-05-10","contact\_city":"Milpitas","contact\_country":"United States","contact\_email":"nmaguire@juiceboxsolar.com","contact\_info\_visible":true,"contact\_name":"Neil Maguire","contact\_phone":"4083919360","contact\_state":"CA","contact\_street\_address":"1650 Centre Pointe Drive","contact\_zip":"95035","contractor\_1":"Cobalt Power","contractor\_2":"","contractor\_3":"","cost\_CAPEX":10000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2015-07-10T20:27:35Z","created\_by\_id":346,"debt\_investor":"","decommissioning\_on":null,"desc":"JuiceBox Energy solar energy storage system tied to 5.9kW PV. System is AC-coupled to a SolarEdge inverter. It provides up to 5.5kW continuous or 7kW peak for 30 minutes to power a protected load panel. The bi-directional inverter is a Schneider Conext XW+. It is permitted and interconnected through PG&E. It is the first residential energy storage system in the US that is permitted for exporting to the grid and actively performs peak-shifting.","developer":"","electronics\_provider":"Schneider Electric","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"PACE","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1778,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1778/JuiceBox\_Enabled.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1778/thumb\_JuiceBox\_Enabled.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1778/partner\_JuiceBox\_Enabled.jpg"}},"integrator\_company":"JuiceBox Energy, Inc.","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.2358078,"longitude":-121.9623751,"master\_project\_id":null,"name":"JuiceBox Residential solar energy storage - AC-coupled peak-shifting and backup","om\_contractor":"","organization":null,"owner\_1":"Confidential Home Owner","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Peakshifting up to 6.5kWh daily, always available for back-up","primary\_reference":"https://www.youtube.com/watch?v=shwpJC4qMZI","primary\_reference1":null,"projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Bill Management with Renewables","service\_use\_case\_4":"Grid-Connected Residential (Reliability)","service\_use\_case\_5":"Onsite Renewable Generation Shifting","service\_use\_case\_6":"Renewables Energy Time Shift","service\_use\_case\_7":"Resiliency","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":5,"size\_kwh":1.16666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":10.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-01-12T19:43:24Z","updated\_at\_by\_admin":"2016-01-12T19:43:24Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"JuiceBox Energy, Inc.","zip":"95030"}},{"project":{"announcement\_on":"2022-04-13","approval\_status":1,"city":"Tórshavn","commissioning\_on":"2022-12-01","companion":"12 MW Wind","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"TN@sv.fo","contact\_info\_visible":false,"contact\_name":"Terji Nielsen","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Faroe Islands","created\_at":"2015-07-13T17:22:37Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"Saft is working with the wind turbine specialist ENERCON to deliver a major energy storage system (ESS) project for SEV, the power producer and distributor for the Faroe Islands. The 2.3 MW / 700 kWh project will be Europe’s first commercial deployment of a lithium ion battery system operating in combination with a wind farm. \r\n\r\nIt will operate in combination with the new wind farm to help SEV address the key grid stability issues created by an increasing penetration of intermittent renewable energy resources. In particular it will provide ramp control to smooth out sharp increases and decreases in power, as well as frequency response and voltage control services.","developer":"","electronics\_provider":"ENERCON","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1779,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1779/hai.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1779/thumb\_hai.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1779/partner\_hai.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":62.007864,"longitude":-6.7909816,"master\_project\_id":null,"name":"Húsahagi Wind Farm ESS: Faroe Islands 700 kWh ","om\_contractor":"","organization":"","owner\_1":"SEV","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.saftbatteries.com/case-studies/saft-li-ion-energy-storage-enables-sev-optimize-wind-power-faroe-islands-0","primary\_reference1":"http://www.renewableenergymagazine.com/article/saft-and-enercon-to-develop-energy-storage-20150415","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Ramping ","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2300,"size\_kwh":0.3,"size\_kwh\_hours":0,"size\_kwh\_minutes":18.0,"state":"Streymoy Island","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T20:19:44Z","updated\_at\_by\_admin":"2015-07-13T17:35:32Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"SEV","utility\_type":"State/Municipal Owned","vendor\_company":"Saft","zip":""}},{"project":{"announcement\_on":"2022-04-07","approval\_status":1,"city":"Lancaster","commissioning\_on":"2022-04-07","companion":"Solar PV, Propane Microturbine, Generators","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"contactcenter@oncor.com","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"1.888.875.6279","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Prim Construction LLC","contractor\_2":"Horizon","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-07-13T19:06:56Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"S&C and Schneider Electric built the microgrid in six months at Oncor’s System Operating Services Facility (SOSF). The system is designed to seamlessly integrate energy storage and renewable energy resources with cutting-edge hardware and software to showcase how microgrids can enhance reliability for Oncor customers.\r\n\r\nThe grid-tied system consists of four interconnected microgrids and nine different distributed generation resources: two solar PV arrays, a microturbine, two energy storage units, and four generators. The system has a total peak capacity of 900 kilowatts, but could theoretically scale to meet just about any need.\r\n","developer":"Oncor Electric","electronics\_provider":"Schneider Electric","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1780,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1780/2015-07-13\_11.56.47\_am.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1780/thumb\_2015-07-13\_11.56.47\_am.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1780/partner\_2015-07-13\_11.56.47\_am.png"}},"integrator\_company":"Schneider Electric","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ERCOT","latitude":32.5920798,"longitude":-96.7561082,"master\_project\_id":null,"name":"Oncor's System Operating Services Facility Microgrid: 200 kW Tesla Battery - Oncor Electric","om\_contractor":"","organization":"Oncor Electric","owner\_1":"Oncor Electric","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.schneider-electric.us/documents/news/corporate/oncor\_announcement\_press\_release\_final.pdf","primary\_reference1":"http://thewire.oncor.com/News/Pages/Technology-Spotlight-Oncor%E2%80%99s-Microgrid.aspx","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-05T02:34:51Z","updated\_at\_by\_admin":"2015-07-28T17:32:17Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Oncor Electric","utility\_type":"Investor Owned","vendor\_company":"Tesla Motors","zip":""}},{"project":{"announcement\_on":"2022-04-07","approval\_status":1,"city":"Lancaster","commissioning\_on":"2022-04-07","companion":"Solar PV, Propane Microturbine, Generators","construction\_on":"2022-08-03","contact\_city":"","contact\_country":"","contact\_email":"david.chiesa@sandc.com; spencer.zirkelbach@sandc.com; randy.boys@oncor.com","contact\_info\_visible":false,"contact\_name":"David Chiesa; Spencer Zirkelbach; Randy Boys","contact\_phone":"630-291-5749 (Chiesa) or 1.888.875.6279 (Oncor)","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Prim Construction LLC","contractor\_2":"Horizon","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-07-13T19:17:08Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"S&C and Schneider Electric built the microgrid in six months at Oncor’s System Operating Services Facility (SOSF). The system is designed to seamlessly integrate energy storage and renewable energy resources with cutting-edge hardware and software to showcase how microgrids can enhance reliability for Oncor customers. \r\n\r\nThe grid-tied system consists of four interconnected microgrids and nine different distributed generation resources: two solar PV arrays, a microturbine, two energy storage units, and four generators. The system has a total peak capacity of 900 kilowatts, but could theoretically scale to meet just about any need. ","developer":"Oncor Electric","electronics\_provider":"S&C Electric","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1781,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1781/2015-07-13\_11.56.47\_am.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1781/thumb\_2015-07-13\_11.56.47\_am.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1781/partner\_2015-07-13\_11.56.47\_am.png"}},"integrator\_company":"S&C Electric","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ERCOT","latitude":32.564362,"longitude":-96.77037,"master\_project\_id":null,"name":"Oncor's System Operating Services Facility (SOSF) Microgrid: 25 kW S&C Electric Battery - Oncor Electric","om\_contractor":"","organization":"S&C Electric Company; Oncor Electric","owner\_1":"Oncor Electric","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.schneider-electric.us/documents/news/corporate/oncor\_announcement\_press\_release\_final.pdf","primary\_reference1":"http://www.greentechmedia.com/articles/read/oncor-sc-and-schneider-electric-complete-their-innovative-four-part-microgr","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":25,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"2471 S Dallas Ave","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-05T02:36:13Z","updated\_at\_by\_admin":"2016-07-29T21:45:09Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Oncor Electric","utility\_type":"Investor Owned","vendor\_company":"S&C Electric ","zip":""}},{"project":{"announcement\_on":"2022-05-25","approval\_status":1,"city":"New York City","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jszabo@tishmanspreyer.com","contact\_info\_visible":false,"contact\_name":"Joseph Szabo ","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-07-15T20:35:13Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"Management was looking to utilize thermal energy storage to supplement the existing air conditioning by pumping chilled water around the entire Rockefeller Center complex. The ice making chiller is sized to provide 8,600 ton-hours of thermal energy storage.\r\n\r\nWhen it’s time to cool, especially during peak demand periods, cooling from the ice storage tanks is used instead of the electric chiller, keeping electricity demand as low as possible. \r\n\r\nAn additional benefit of having the energy storage available is greater operational flexibility. The stored cooling can be used as it is needed to optimize plant efficiency while keeping demand and cooling costs low. \r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":311000.0,"funding\_amount\_3":null,"funding\_source\_1":"Tishman Speyer","funding\_source\_2":"New York State Energy Research and Development Authority (NYSERDA)","funding\_source\_3":"","funding\_source\_details\_1":"Management Decision","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1782,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1782/no-image.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1782/thumb\_no-image.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1782/partner\_no-image.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.7589426,"longitude":-73.9793564,"master\_project\_id":null,"name":"Rockefeller Center Thermal Storage","om\_contractor":"","organization":"","owner\_1":"Tishman Speyer","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.calmac.com/energy-storage-case-study-rockefeller-center","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"Help support the installation of energy-efficient technology.","research\_institution":"New York State Energy Research and Development Authority (NYSERDA)","research\_institution\_link":"311000","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1025,"size\_kwh":15.0,"size\_kwh\_hours":15,"size\_kwh\_minutes":0.0,"state":"New York","status":"Operational","street\_address":"30 Rockefeller Plaza","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Thermal: Chilled Water and Ice","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-04T04:44:22Z","updated\_at\_by\_admin":"2015-10-26T17:37:29Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Consolidated Edison Company of New York (Con Edison)","utility\_type":"Investor Owned","vendor\_company":"CALMAC","zip":""}},{"project":{"announcement\_on":"2022-06-15","approval\_status":1,"city":"Bangalore","commissioning\_on":"2022-06-15","companion":"150 kW Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"gina.katz@imergy.com","contact\_info\_visible":true,"contact\_name":"Gina Katz","contact\_phone":"831-239-3689","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"India","created\_at":"2015-07-15T23:38:14Z","created\_by\_id":344,"debt\_investor":"","decommissioning\_on":null,"desc":"Imergy Power Systems has installed a 30 kilowatt, 120 kilowatt-hour ESP30 vanadium flow battery at Global Academy of Technology (GAT) College in Bangalore, India. GAT jointly with SunEdison have a solar research and testing center set-up in their premises. As part of this initiative, SunEdison has implemented rooftop solar and conducts various tests. By implementing the IMERGY storage solution in the premises, GAT is able to store the energy produced by the PV panels during the day and use it during the non-solar time, thus eliminating the diesel generator run to provide clean power when needed.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1786,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":12.926844,"longitude":77.526537,"master\_project\_id":null,"name":"GAT College 30 kW Imergy Flow Battery","om\_contractor":"","organization":null,"owner\_1":"Global Academy of Technology","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://cleantechnica.com/2015/06/15/imergy-flow-battery-installed-gat-college-india/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"Provide clean and green energy at the premises, eliminate the diesel run, save on the operational costs, and finally, help the engineering students in the college to understand the technology and help create the knowledge base and use the skill sets and the technology to implement rural microgrids to light up the off-grid villages and provide energy security to the country.","research\_institution":"Global Academy of Technology","research\_institution\_link":"www.gat.ac.in","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":30,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Karnataka","status":"Operational","street\_address":"Global Academy of Technology","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-07-28T17:18:14Z","updated\_at\_by\_admin":"2015-07-28T17:17:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Imergy Power Systems","zip":""}},{"project":{"announcement\_on":"2022-03-17","approval\_status":1,"city":"Manhattan","commissioning\_on":null,"companion":"","construction\_on":"2022-03-17","contact\_city":"","contact\_country":"","contact\_email":"doug@demand-energy.com","contact\_info\_visible":true,"contact\_name":"Doug Staker, Demand Energy","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-07-16T00:05:46Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"Glenwood Management, an owner and builder of luxury rental properties in Manhattan, is deploying 1 MW of distributed energy storage systems in ten buildings in its real estate portfolio. \r\n\r\nThe energy storage systems will be operational for the summer peak load season and will support the Indian Point Demand Management Program that Con Edison and NYSERDA are offering to commercial customers. Glenwood has contracted with EnerSys, a provider of industrial battery solutions, and Demand Energy to deliver, install and operate an aggregated 1 MW of energy storage. The aggregation includes 10 valve regulated lead-acid energy storage systems with a capacity of 100 kW/ 400 kWh each. \r\n\r\nIf there is a demand response event, all of the systems can be coordinated to stop their individual activities and function as a single resource for grid support. The systems also participate in the transitive energy market in New York City when outside of the summer peak load season. ","developer":"Glenwood Management","electronics\_provider":"Princeton Power","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1788,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1788/Glenwood\_Install\_Sites\_.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1788/thumb\_Glenwood\_Install\_Sites\_.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1788/partner\_Glenwood\_Install\_Sites\_.png"}},"integrator\_company":"Demand Energy Networks, Inc.","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"NYISO","latitude":40.7830603,"longitude":-73.9712488,"master\_project\_id":null,"name":"New York City 1 MW Aggregated BTM - Glenwood Management","om\_contractor":"Demand Energy Networks, Inc.","organization":"","owner\_1":"Glenwood Management","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.multihousingnews.com/post/glenwood-to-build-distributed-energy-storage-for-nyc-apartments/","primary\_reference1":"https://wteinternational.com/glenwood-announces-plans-to-deploy-distributed-energy-storage-systems-in-nyc-buildings/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Electric Supply Capacity","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"New York","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Valve Regulated Lead-acid Battery","technology\_type\_l1":"Valve Regulated Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-08T02:54:06Z","updated\_at\_by\_admin":"2015-07-28T18:32:42Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Consolidated Edison Company of New York (Con Edison)","utility\_type":"Investor Owned","vendor\_company":"EnerSys","zip":""}},{"project":{"announcement\_on":"2022-02-01","approval\_status":0,"city":"Antequera","commissioning\_on":"2022-05-25","companion":"","construction\_on":"2022-01-12","contact\_city":"La Rinconada","contact\_country":"Spain","contact\_email":"marketing@wininertia.es","contact\_info\_visible":true,"contact\_name":"Rafael González","contact\_phone":"+34 954 173 085 (Spain)","contact\_state":"Sevilla","contact\_street\_address":"P.E. Aerópolis - Calle Wilbur y Orville Wright, 29","contact\_zip":"41309","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":729027.29,"cost\_OPEX":12.5,"country":"Spain","created\_at":"2015-07-16T16:45:20Z","created\_by\_id":344,"debt\_investor":"","decommissioning\_on":null,"desc":"FerroSmartGrid is a demonstration project that aims to achieve maximum efficiency in the railway infrastructure power grid. In order to do this, a new generation of railway smart nodes has been developed to enable interoperability between urban/interurban transportation systems, users and the railway infrastructure. Win Inertia, as a technological solutions provider, uses the same environmental technological concept developed in the Ferrolinera project to create smart nodes over the railway infrastructure.\r\n\r\nThe Regulation node helps stabilize the electric grid using its optimized storage combination of Maxwell’s ultracapacitors and battery storage technologies to gradually draw excess energy from either renewable energy sources or the grid in cases of overproduction. This stored energy is carefully managed until there is a need in the grid, at which time the regulation node rapidly and expertly injects the necessary energy to cover the deficit.\r\n\r\nPlease note that the techonology type for this project is actually a hybrid lead-acid battery/electro-chemical capacitor.","developer":"Win Inertia","electronics\_provider":"Win Inertia","energy\_management\_software\_provider":null,"funding\_amount\_1":729027.29,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"INNTERCONECTA Program (Spain)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1789,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Win Inertia","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":37.0426145,"longitude":-4.720681,"master\_project\_id":"1790","name":"FerroSmartGrid - Regulation Node","om\_contractor":"","organization":null,"owner\_1":"Adif","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.spanishrailwaysnews.com/noticias.asp?not=437","primary\_reference1":null,"projected\_lifetime":"25.0","rdd\_status":"Yes","research\_desc":"Jaen - PV installations of the Regulation node; Sevilla - Collaborated on the central management system for the nodes; Málaga - Defined energy potential for regenerative braking energy generation","research\_institution":"Universidad de Jaen; Universidad de Sevilla - Electronic Technology Group; Universidad de Málaga - Escuela Técnica Superior de Ingeniería Industrial ","research\_institution\_link":"http://www10.ujaen.es/","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Transportation Services","service\_use\_case\_6":"Voltage Support","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":50,"size\_kwh":0.3,"size\_kwh\_hours":0,"size\_kwh\_minutes":18.0,"state":"Málaga","status":"Operational","street\_address":"Carretera MA-5406, km 6","systems\_integration":"","technology\_classification":"","technology\_type":"Hybrid Lead-acid Battery/Electro-chemical Capacitor","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-27T20:58:55Z","updated\_at\_by\_admin":"2015-10-27T20:57:37Z","updated\_by":null,"updated\_by\_email":null,"utility":"Administrator of Railway Infrastructures (Adif)","utility\_type":"Federally Owned","vendor\_company":"AMOPACK SL and Maxwell Technologies","zip":"29540"}},{"project":{"announcement\_on":"2022-02-01","approval\_status":0,"city":"Málaga","commissioning\_on":"2022-06-01","companion":"","construction\_on":"2022-01-14","contact\_city":"La Rinconada","contact\_country":"Spain","contact\_email":"marketing@wininertia.es","contact\_info\_visible":true,"contact\_name":"Rafael González","contact\_phone":"+34 954 173 085 (Spain)","contact\_state":"Sevilla","contact\_street\_address":"P.E. Aerópolis - Calle Wilbur y Orville Wright, 29","contact\_zip":"41309","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":729064.24,"cost\_OPEX":12.5,"country":"Spain","created\_at":"2015-07-20T16:58:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"FerroSmartGrid is a demonstration project that aims to achieve maximum efficiency in the railway infrastructure power grid. In order to do this, a new generation of railway smart nodes has been developed to enable interoperability between urban/interurban transportation systems, users and the railway infrastructure. Win Inertia, as a technological solutions provider, uses the same environmental technological concept developed in the Ferrolinera project to create smart nodes over the railway infrastructure.\r\n\r\nThe Recuperation node, which incorporates Win Inertia’s hybrid energy storage system, allows recovery of the energy generated by the braking action of a train, storing it in Maxwell ultracapacitors according to an energy management algorithms’ assessment of the needs of the system at any given point in time. \r\n\r\nThe Recuperation node can be converted into an Interoperability node by adding Win Inertia’s EV charging point, which draws its supply from the same recovered energy from the braking process.","developer":"Win Inertia","electronics\_provider":"Win Inertia","energy\_management\_software\_provider":null,"funding\_amount\_1":729064.24,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"INNTERCONECTA Program (Spain)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1790,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Win Inertia","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":36.7086133,"longitude":-4.4397604,"master\_project\_id":"","name":"FerroSmartGrid - Recuperation/Interoperability Node","om\_contractor":"","organization":null,"owner\_1":"Adif","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www2.schneider-electric.com/sites/corporate/en/products-services/energy-distribution/r-d-projects/ferro-smart-grid.page","primary\_reference1":null,"projected\_lifetime":"25.0","rdd\_status":"Yes","research\_desc":"Jaen - PV installations of the Regulation node; Sevilla - Collaborated on the central management system for the nodes; Málaga - Defined energy potential for regenerative braking energy generation","research\_institution":"Universidad de Jaen; Universidad de Sevilla - Electronic Technology Group; Universidad de Málaga - Escuela Técnica Superior de Ingeniería Industrial ","research\_institution\_link":"http://www10.ujaen.es/; http://iecon02.us.es/; http://www.die.uma.es/","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Transportation Services","service\_use\_case\_6":"Voltage Support","service\_use\_case\_7":"Microgrid Capability","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":50,"size\_kwh":0.0166666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":1.0,"state":"Málaga","status":"Operational","street\_address":"Calle Agustín Martín Carrión","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical Capacitor","technology\_type\_l1":"Electro-chemical Capacitor","technology\_type\_l2":"Electro-chemical Capacitor","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-27T20:35:52Z","updated\_at\_by\_admin":"2015-08-28T01:57:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"Administrator of Railway Infrastructures (Adif)","utility\_type":"Federally Owned","vendor\_company":"Maxwell Technologies","zip":"29006"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Dorset","commissioning\_on":"2022-10-10","companion":"Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@anesco.co.uk","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2015-07-22T17:48:59Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"Anesco, Farm Power Apollo and Opus Energy worked together to install and commission a 250 kWh storage unit to the 498.4 kW Slepe Farm PV site in Dorset, England, that will provide energy for National Grid when required. The energy storage technology makes sure that solar power output is steady and demonstrates how solar power can be a key part of the generation mix.\r\n","developer":"Farm Power Apollo","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1791,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1791/Battery-Slepe-Farm-sm\_\_1\_.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1791/thumb\_Battery-Slepe-Farm-sm\_\_1\_.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1791/partner\_Battery-Slepe-Farm-sm\_\_1\_.jpg"}},"integrator\_company":"Opus Energy","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":50.739014,"longitude":-2.101197,"master\_project\_id":null,"name":"Slepe Farm: Solar + 250 kWh storage - Farm Power Apollo","om\_contractor":"Opus Energy","organization":"Anesco","owner\_1":"Farm Power Apollo","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://anesco.co.uk/slepe-farm/","primary\_reference1":"http://solar.cleantechnology-business-review.com/news/anesco-farm-power-apollo-and-opus-energy-partner-on-uk-solar-battery-storage-project-101014-4401148","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":598,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"England","status":"Operational","street\_address":"Slepe Farm","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-24T02:47:44Z","updated\_at\_by\_admin":"2016-05-23T20:37:52Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"National Grid","utility\_type":"Investor Owned","vendor\_company":"Anesco (BYD)","zip":""}},{"project":{"announcement\_on":"2022-04-16","approval\_status":1,"city":"Central Valley","commissioning\_on":"2022-02-15","companion":"","construction\_on":"2021-12-22","contact\_city":"","contact\_country":"","contact\_email":"nevinc@conedsolutions.com","contact\_info\_visible":true,"contact\_name":"Christine Nevin","contact\_phone":"+1 914-286-7094","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-07-22T21:48:39Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"General Electric (GE) announced that it will supply Con Edison Development (CED) with an 8 MWh battery energy storage system in Central Valley, CA. The new storage solution will be utilizing GE’s Mark VIe-based plant control system, Brilliance MW Inverters, and packaged lithium ion battery modules.\r\n\r\nAs part of its expanding energy storage portfolio, this project marks the first time GE will introduce a lithium-ion battery solution. The system will provide two megawatts of power over a four-hour period, and the deal includes delivery of a complete energy storage system, with associated long-term service agreements.\r\n\r\nWorking with CED, GE utilized advanced analytics and modeling to evaluate potential benefits of the energy storage system. The California-based installation will be CED’s first energy storage project and will serve as a learning tool for optimizing and operating energy storage facilities in the future.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1792,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":40.6804279,"longitude":-122.3708419,"master\_project\_id":null,"name":"GE and Con Edison 8 MWh","om\_contractor":"General Electric","organization":"","owner\_1":"Con Edison Development","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.businesswire.com/news/home/20150416005122/en/Con-Edison-Development-Enters-Agreement-Procure-GE#.VbADfBNViko","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-05-09T20:45:50Z","updated\_at\_by\_admin":"2017-05-09T20:45:50Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"General Electric","zip":""}},{"project":{"announcement\_on":"2022-06-23","approval\_status":1,"city":"Helsinki","commissioning\_on":"2022-05-01","companion":"Helen’s solar power plants in Suvilahti (340 kWp) and in Kivikko (850 kWp)","construction\_on":"2022-03-01","contact\_city":"","contact\_country":"","contact\_email":"access@tais.toshiba.com; kati.pesola@landisgyr.com","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"949.461.4510","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Finland","created\_at":"2015-07-22T23:33:49Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"Toshiba Group and Landis+Gyr have won a major order to supply a megawatt-class battery energy storage system to Helen Ltd., a major energy utility operating in the capital of Finland. The energy storage system, the first in any Nordic country, will start operation in Helsinki in spring 2016. The energy storage system compensates for variations in weather conditions by storing and conditioning power from renewables and delivering it for periods ranging from a few seconds to several minutes, to iron out frequency fluctuations. Toshiba has developed technologies and products for all parts of the process.\r\n\r\nLandis+Gyr will supply a 1.2MW-0.6 MWh SCiB™ lithium-ion BESS for installation on a site next to the Suvilahti solar power plant, Finland’s largest, built as a part of a smart community project that Helen is developing in Helsinki’s Kalasatama District.","developer":"Landis+Gyr (Toshiba Group)","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1793,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1793/helen\_battery.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1793/thumb\_helen\_battery.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1793/partner\_helen\_battery.JPG"}},"integrator\_company":"Landis+Gyr (Toshiba Group)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":60.1698557,"longitude":24.9383791,"master\_project\_id":null,"name":"Helen BESS - Landis+Gyr (Toshiba Group)","om\_contractor":"","organization":"Toshiba; Landis+Gyr (Toshiba Group)","owner\_1":"Helen Ltd","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.toshiba.co.jp/about/press/2015\_06/pr2301.htm","primary\_reference1":"https://www.helen.fi/en/news/2015/largest-electricity-storage-facility-in-the-nordic-countries-to-be-built-in-helsinki/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1200,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Uusimaa","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:47:22Z","updated\_at\_by\_admin":"2016-06-28T00:32:31Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Helen Ltd","utility\_type":"","vendor\_company":"Toshiba","zip":""}},{"project":{"announcement\_on":"2022-03-27","approval\_status":1,"city":"Riverside","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"gmiller@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Greg Miller","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-07-24T23:19:45Z","created\_by\_id":344,"debt\_investor":"","decommissioning\_on":null,"desc":"Ice Energy has been awarded a five-year contract from Riverside Public Utilities to provide 5 megawatts of behind-the-meter thermal energy storage using Ice Energy’s proprietary Ice Bear system. This thermal energy storage technology will help Riverside Public Utilities better integrate its increasing reliance on renewable energy resources like solar, wind, and geothermal systems, while maintaining low energy costs for its customers.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1795,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":33.9533487,"longitude":-117.3961564,"master\_project\_id":null,"name":"Riverside Public Utilities 5 MW Ice Energy Project","om\_contractor":"","organization":"Ice Energy","owner\_1":"Riverside Public Utilities","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.ice-energy.com/ice-energy-helps-californias-riverside-public-utilities-set-stage-utility-2-0/","primary\_reference1":"http://www.achrnews.com/articles/129211-march-27-2015-ice-storage-to-help-californias-riverside-public-utilities-reduce-peak-demand","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":5000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-01-22T06:19:25Z","updated\_at\_by\_admin":"2017-10-23T22:48:46Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Riverside Public Utilities","utility\_type":"Public Owned","vendor\_company":"Ice Energy","zip":""}},{"project":{"announcement\_on":"2022-07-31","approval\_status":1,"city":"Amfilochia","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Athens","contact\_country":"Greece","contact\_email":"ternaenergy@terna-energy.com","contact\_info\_visible":false,"contact\_name":"Mrs Yioula Tsiknakou","contact\_phone":"2106968300","contact\_state":"Attica","contact\_street\_address":"85, Mesogeion Avenue","contact\_zip":"GR 115 26","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":502000000.0,"cost\_OPEX":17480000.0,"country":"Greece","created\_at":"2015-07-31T10:48:40Z","created\_by\_id":348,"debt\_investor":"","decommissioning\_on":null,"desc":"The Hydro Pumped Storage Amfilochia is located in the Municipality of Amfilochia, Prefecture of Aitoloakarnania, Central Greece. It consists of two separate upper reservoirs, “Agios Georgios” and “Pyrgos”, and a common lower reservoir, the existing Kastraki Lake (Public Power Company - PPC ownership). The electromechanical equipment will be installed in two independent powerhouses located near the north-eastern bank of the Kastraki Lake. The total installed capacity of the system is approx. 680 MW and the net annual electricity generation is 812 GWh. The total budget of the project is expected to exceed the amount of 500M euros.\r\n\r\nThe Agios Georgios reservoir has an effective storage capacity around 5 x 106 m^3; installed power (turbine mode): 370MW (4 reversible units); Installed power (pumping mode): 403 MW. The Pyrgos reservoir has an effective storage capacity around 2 x 106 m^3; Installed power (turbine mode): 231 MW (2 reversible units); Installed power (pumping mode): 237 MW.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Debt","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1798,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1798/Amfilochia\_-\_Greece.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1798/thumb\_Amfilochia\_-\_Greece.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1798/partner\_Amfilochia\_-\_Greece.jpg"}},"integrator\_company":"TERNA ENERGY S.A.","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.8632567,"longitude":21.1666182,"master\_project\_id":null,"name":"Hydro Pumped Storage Amfilochia","om\_contractor":"","organization":"","owner\_1":"TERNA ENERGY S.A.","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://hps-amfilochia.gr/projects/","primary\_reference1":"https://ec.europa.eu/eipp/desktop/en/projects/project-32.html","projected\_lifetime":"50.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Ramping ","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"Renewables Energy Time Shift","service\_use\_case\_7":"Voltage Support","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":680000,"size\_kwh":24.0,"size\_kwh\_hours":24,"size\_kwh\_minutes":0.0,"state":"Aitoloakarnania","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Closed-loop Pumped Hydro Storage","technology\_type\_l1":"Closed-loop Pumped Hydro Storage","technology\_type\_l2":"Closed-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2017-10-24T16:09:49Z","updated\_at\_by\_admin":"2017-10-23T22:33:12Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-06-19","approval\_status":0,"city":"Rethymnon and Lassithi","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Athens","contact\_country":"Greece","contact\_email":"ternaenergy@terna-energy.com","contact\_info\_visible":true,"contact\_name":"Mrs Yioula Tsiknakou","contact\_phone":"+302106968300","contact\_state":"Attica","contact\_street\_address":"85, Messogeion Ave.","contact\_zip":"GR 115 26","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":276720000.0,"cost\_OPEX":3950000.0,"country":"Greece","created\_at":"2015-07-31T11:09:01Z","created\_by\_id":348,"debt\_investor":"","decommissioning\_on":null,"desc":"The Amari hybrid project is a system that combines wind energy (Lassithi prefecture) and Pumped Storage technology (Rethymnon prefecture). The installed capacity of the wind farms is 89.1 MW, where each of the 27 wind generators provides 3.30 MW, whereas the pumped hydro storage system consists of three reversible hydro units (25 MW each) giving 50 MW guaranteed capacity and ten pumps (3.216 MW each).","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1800,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1800/Amari\_-\_Greece.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1800/thumb\_Amari\_-\_Greece.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1800/partner\_Amari\_-\_Greece.jpg"}},"integrator\_company":"Terna Energy S.A.","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.240117,"longitude":24.8092691,"master\_project\_id":null,"name":"Amari Pumped Hydro Hybrid Project","om\_contractor":"","organization":null,"owner\_1":"Terna Energy S.A.","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.gekterna.com/userfiles/PressReleases/pressreleases/en/2014/press\_release\_gekterna\_19-06-2014\_en.pdf","primary\_reference1":null,"projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_10":"Resiliency","service\_use\_case\_11":"Voltage Support","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Ramping ","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"Renewables Energy Time Shift","service\_use\_case\_7":"Resiliency","service\_use\_case\_8":"Voltage Support","service\_use\_case\_9":"Renewables Energy Time Shift","siting":"","size\_kw":50000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Crete","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Closed-loop Pumped Hydro Storage","technology\_type\_l1":"Closed-loop Pumped Hydro Storage","technology\_type\_l2":"Closed-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2015-08-04T18:02:32Z","updated\_at\_by\_admin":"2015-08-04T18:02:20Z","updated\_by":null,"updated\_by\_email":null,"utility":"Terna Energy S.A.","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-06-01","approval\_status":0,"city":"San Diego","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"frontdesk@oceanparkinn.com","contact\_info\_visible":false,"contact\_name":"Elvin Lai","contact\_phone":"858-483-5858","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-08-03T23:25:22Z","created\_by\_id":344,"debt\_investor":"","decommissioning\_on":null,"desc":"The Ocean Park Inn in San Diego installed Stem’s energy storage system and is expected to save an average of $4,500 per year, lowering its annual demand charges by more than 10 percent. The hotel is also saving energy by spreading out energy-intensive activities with the help of Stem’s PowerStore software platform. Stem’s software displays real-time and predicted energy use, providing visibility into how the hotel’s energy usage patterns translate to costs.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1801,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.7950409,"longitude":-117.2559448,"master\_project\_id":null,"name":"Ocean Park Inn 18 kW Stem","om\_contractor":"","organization":null,"owner\_1":"Elvin Lai","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.stem.com/san-diego-hotel-adopts-energy-storage","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":18,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"710 Grand Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-12-01T19:03:53Z","updated\_at\_by\_admin":"2015-08-04T18:53:20Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"STEM","zip":""}},{"project":{"announcement\_on":"2022-07-23","approval\_status":0,"city":"Corte","commissioning\_on":null,"companion":"Photovoltaic","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jill.ledger@saftbatteries.com","contact\_info\_visible":false,"contact\_name":"Jill Ledger","contact\_phone":"33 (0)1 49 93 17 77","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"France","created\_at":"2015-08-03T23:25:23Z","created\_by\_id":344,"debt\_investor":"","decommissioning\_on":null,"desc":"The France-based Langa Group has selected Schneider Electric and Saft for two energy storage systems associated with solar power plants in Corsica. With a nominal solar power of 1 MW and a storage capacity of 1 MWh, each plant is expected to produce more than 1,300 MWh per year. Saft will supply its Intensium Max+ 20E lithium-ion containerized energy storage system. Schneider Electric will supply its PVBox for solar power conversion, its ESBox for battery power conversion, and an energy management system for equipment control of Saft batteries. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1804,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Schneider Electric","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":42.2918623,"longitude":9.1896607,"master\_project\_id":null,"name":"Corsica 2 MW Storage by Saft and Schneider","om\_contractor":"","organization":null,"owner\_1":"Langa Group","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://saftbatteries.com/press/press-releases/langa-group-selects-schneider-electric-and-saft-two-new-solar-power-plants","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Corsica","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-08-13T18:41:53Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Saft","zip":""}},{"project":{"announcement\_on":"2022-05-21","approval\_status":1,"city":"Lantau Island","commissioning\_on":"2022-02-01","companion":"","construction\_on":"2022-11-01","contact\_city":"","contact\_country":"","contact\_email":"info.rdweb@hal.hitachi.com","contact\_info\_visible":true,"contact\_name":"Hitachi R&D","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Hong Kong","created\_at":"2015-08-04T23:31:06Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"Hitachi received an order for two energy storage devices for Traction Power Supply Systems through from MTR Corporation Limited (“HONG KONG RAILWAY”), a railway company in Hong Kong. The system will be delivered by November 2015 and will start operation after February 2016. This will be the first time that lithium ion battery-applied regenerative braking will be installed in Hong Kong's railway systems.\r\n\r\nIn an effort to save energy, Hong Kong Railway is considering installation of systems for both onboard and wayside systems in order to reduce power consumption and increase of power efficiency of railway operation as a whole.\r\n\r\nEach waywide system will be installed in each line's substation. The system will include two lines; the one is to Airport Express Line connects Hong Kong and Kowloon to Hong Kong International Airport situated off Lantau Island (total operating distance is 35 km.), and the other is to Tsuen Wan Line connects Central Station to Tsuen Wan Station situated in southern new territories. After one year validation of energy saving effects, the system is expected to widely adopt to HONG KONG RAILWAY's lines when commercially viable.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1805,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1805/150521.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1805/thumb\_150521.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1805/partner\_150521.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":22.2478472,"longitude":113.9179589,"master\_project\_id":null,"name":"Hong Kong Railway-Wayside Energy Storage 1","om\_contractor":"","organization":"","owner\_1":"MTR Corporation Limited (\"HONG KONG RAILWAY\")","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.hitachi.com/New/cnews/month/2015/05/150521.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transportation Services","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":0.05,"size\_kwh\_hours":0,"size\_kwh\_minutes":3.0,"state":"Hong Kong","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T23:36:59Z","updated\_at\_by\_admin":"2015-08-19T00:15:54Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"Hitachi","zip":""}},{"project":{"announcement\_on":"2022-05-21","approval\_status":1,"city":"Tsuen Wan","commissioning\_on":"2022-02-01","companion":"","construction\_on":"2022-11-01","contact\_city":"","contact\_country":"","contact\_email":"info.rdweb@hal.hitachi.com","contact\_info\_visible":false,"contact\_name":"Hitachi R&D","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Hong Kong","created\_at":"2015-08-04T23:46:19Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"Hitachi received an order for two energy storage devices for Traction Power Supply Systems through from MTR Corporation Limited (“HONG KONG RAILWAY”), a railway company in Hong Kong. The system will be delivered by November 2015 and will start operation after February 2016. This will be the first time that lithium ion battery-applied regenerative braking will be installed in Hong Kong's railway systems. \r\n\r\nIn an effort to save energy, Hong Kong Railway is considering installation of systems for both onboard and wayside systems in order to reduce power consumption and increase of power efficiency of railway operation as a whole. Each waywide system will be installed in each line's substation. \r\n\r\nThe system will include two lines; the one is to Airport Express Line connects Hong Kong and Kowloon to Hong Kong International Airport situated off Lantau Island (total operating distance is 35 km.), and the other is to Tsuen Wan Line connects Central Station to Tsuen Wan Station situated in southern new territories. After one year validation of energy saving effects, the system is expected to widely adopt to HONG KONG RAILWAY's lines when commercially viable.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1806,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1806/150521.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1806/thumb\_150521.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1806/partner\_150521.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":22.373644,"longitude":114.11778,"master\_project\_id":null,"name":"Hong Kong Railway-Wayside Energy Storage 2","om\_contractor":"","organization":"","owner\_1":"MTR Corporation Limited (\"HONG KONG RAILWAY\")","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.hitachi.com/New/cnews/month/2015/05/150521.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transportation Services","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":0.05,"size\_kwh\_hours":0,"size\_kwh\_minutes":3.0,"state":"Hong Kong","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T23:36:24Z","updated\_at\_by\_admin":"2015-08-19T00:17:15Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"Hitachi","zip":""}},{"project":{"announcement\_on":"2022-07-08","approval\_status":0,"city":"Livermore Valley","commissioning\_on":null,"companion":"59 kW PV solar power system ","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"gina.katz@imergy.com","contact\_info\_visible":true,"contact\_name":"Gina Katz","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-08-07T19:44:27Z","created\_by\_id":345,"debt\_investor":"","decommissioning\_on":null,"desc":"Imergy Power Systems announced today that the Livermore Valley Performing Arts Center will install an Imergy ESP30™ Series vanadium-based flow battery as part of its new behind-the-meter clean energy system. The 30 kilowatt/120 kilowatt-hour ESP30 battery, working in conjunction with a SunEdison, Inc 59 kilowatt photovoltaic (PV) solar power system and Geli’s Energy Operating System (Geli EOS) software, will enable the arts center to reduce its greenhouse gas emissions, lower its energy costs and improve its energy resiliency.\r\n\r\nIn addition to its environmental benefits the new behind-the-meter clean energy system will reduce the amount of electricity the arts center needs to purchase from the grid, helping the arts center lower its utility bill. The new system will also allow the arts center to store electricity generated by its SunEdison solar system during the day for use at night, helping it lower its peak energy use levels and avoid possible energy demand charges in the future.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1807,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.680208,"longitude":-121.7918985,"master\_project\_id":null,"name":"Livermore Valley Performing Arts Center 30 kW Imergy Flow Battery","om\_contractor":"Geli","organization":null,"owner\_1":"Livermore Valley Performing Arts Center","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.imergy.com/press-releases/2015/7/livermore-valley-performing-arts-center-to-turn-on-the-stage-lights-with-imergys-esp30-vanadium-based-flow-battery","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":30,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-27T20:44:46Z","updated\_at\_by\_admin":"2015-10-26T17:44:28Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Imergy","zip":""}},{"project":{"announcement\_on":"2022-05-29","approval\_status":1,"city":"Minamisoma","commissioning\_on":"2022-02-26","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"access@tais.toshiba.com","contact\_info\_visible":true,"contact\_name":"Toshiba Press","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2015-08-10T22:46:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Tohoku Electric Power Company has deployed the battery energy storage system (BESS) in a power transmission substation in Minami-Soma, on Japan’s east coast in Fukushima prefecture, as part of the \"Minami-Soma Substation Project to Verify the Improvement of Supply-Demand Balance with Large-capacity Power Storage Systems″. The BESS will manage and improve the balance of renewable energy supply and demand, which is subject to weather-influenced output fluctuations, by storing surplus renewable electricity when supply exceeds demand and releasing stored electricity at times of high demand.\r\n\r\nThe current project is the second in which Toshiba has supplied a 40 MW class BESS to Tohoku Electric Power Company. This order follows high evaluations of the technical performance of a 40 MW / 20 MWh delivered in 2014 for a Tohoku Electric Power Company’s Nishi-Sendai Project, in Miyagi prefecture, north of Fukushima, to regulate frequency changes caused by power output fluctuations.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1809,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1809/minamisoma\_substation.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1809/thumb\_minamisoma\_substation.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1809/partner\_minamisoma\_substation.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.6421608,"longitude":140.9572757,"master\_project\_id":null,"name":"Minami-Soma Substation - Tohoku Electric / Toshiba","om\_contractor":"","organization":"","owner\_1":"Tohoku Electric Power Company","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.toshiba.co.jp/about/press/2015\_05/pr2901.htm#PRESS","primary\_reference1":"http://techon.nikkeibp.co.jp/atclen/news\_en/15mk/030900431/?ST=msbe","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":40000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Fukushima 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Communications","contact\_phone":"978-687-2342","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-08-12T22:08:56Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Dynapower Company announced that it has expanded the capacity and performance of the micro-grid system at its company headquarters in South Burlington, Vermont, by adding 375 kW/250 kWh of lithium-titanate batteries manufactured by Microvast Power Solutions.\r\n\r\nThe Dynapower HQ micro-grid, which also includes 100 kW of photovoltaic (PV) systems, 100 kW of wind power, and 750 kW of additional battery storage capacity, provides local load support and demonstrates how Dynapower energy storage inverters can deliver efficient micro-grid power conversion.\r\n\r\nThis project will provide ancillary services to the local power grid, smooth intermittent wind power and mitigate rapid power drops from the solar array during cloud passing events.","developer":"Dynapower Company","electronics\_provider":"Dynapower Company","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1810,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1810/MOD-320054\_HQmicro-grid.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1810/thumb\_MOD-320054\_HQmicro-grid.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1810/partner\_MOD-320054\_HQmicro-grid.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":44.442312,"longitude":-73.153902,"master\_project\_id":null,"name":"Dynapower Company HQ micro-grid","om\_contractor":"","organization":null,"owner\_1":"Dynapower","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.marketwired.com/press-release/dynapower-expands-energy-storage-capacity-headquarters-micro-grid-adding-375-kw-250-2011750.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":375,"size\_kwh":0.666666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":40.0,"state":"Vermont","status":"Announced","street\_address":"85 Meadowland Drive, South Burlington, Vermont 05403","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-titanate","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-27T21:07:26Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Microvast Power Solutions","zip":""}},{"project":{"announcement\_on":"2022-08-19","approval\_status":1,"city":"N/A","commissioning\_on":null,"companion":"Wind, Solar","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"charlotte.tidball@virginlimitededition.com","contact\_info\_visible":true,"contact\_name":"Charlotte Tidball","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"British Virgin Islands","created\_at":"2015-08-19T01:00:58Z","created\_by\_id":351,"debt\_investor":"","decommissioning\_on":null,"desc":"Thanks to a cutting-edge renewable power partnership with NRG and Virgin Limited Edition, Necker Island will be powered with a solar + storage microgrid. Upon completion, the 1.0 MW microgrid seeks to reduce diesel energy usage on the island by at least 75 percent. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1829,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1829/1829\_-\_Necker\_Island.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1829/thumb\_1829\_-\_Necker\_Island.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1829/partner\_1829\_-\_Necker\_Island.jpg"}},"integrator\_company":"NRG","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":18.5267666,"longitude":-64.3586276,"master\_project\_id":null,"name":"1 MW Necker Island NRG Virgin Project","om\_contractor":"","organization":"Virgin","owner\_1":"Richard Branson / Virgin","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://microgridknowledge.com/case-study-necker-island-british-virgin-islands-among-the-most-energy-efficient-islands-in-the-world/","primary\_reference1":"https://www.nrel.gov/docs/fy15osti/62703.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Necker Island","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:19:49Z","updated\_at\_by\_admin":"2015-09-09T23:08:59Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Iwaki","commissioning\_on":"2022-10-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@ecoult.com","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"+1 (610) 682 3263","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2015-08-19T01:00:58Z","created\_by\_id":351,"debt\_investor":"","decommissioning\_on":null,"desc":"Furukawa Battery has set up a smart grid demonstration of UltraBattery® technology at their Iwaki factory. The load-levelling application involves 192 UltraBattery® cells, a 100-kW power conditioning system and a battery management system. The system was constructed to control the demand of electric power in their factory.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1830,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1830/1830\_-\_Iwaki.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1830/thumb\_1830\_-\_Iwaki.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1830/partner\_1830\_-\_Iwaki.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.0504195,"longitude":140.8876817,"master\_project\_id":null,"name":"100 kW Furukawa Battery Iwaki Factory ","om\_contractor":"","organization":"Ecoult","owner\_1":"Furukawa Battery","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.ultrabattery.com/case-studies/case-studies-stationary/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Load Following (Tertiary Balancing)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":1.91666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":55.0,"state":"Fukushima","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Hybrid Lead-acid Battery/Electro-chemical capacitor","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-26T02:56:07Z","updated\_at\_by\_admin":"2015-09-09T22:18:37Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Furukawa Battery","zip":""}},{"project":{"announcement\_on":"2022-08-19","approval\_status":1,"city":"Tokyo","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@ecoult.com","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"+61 2 9241 3001","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2015-08-19T01:00:58Z","created\_by\_id":351,"debt\_investor":"","decommissioning\_on":null,"desc":"Furukawa developed a storage system for a corporate microgrid at Shimizu Corporation. The 500 Ah smart building application uses 163 Ultrabattery cells, each rated at 2 V. The energy storage system for the batteries monitors cell voltage, impedance and temperature.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1831,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1831/1831\_-\_Shimizu.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1831/thumb\_1831\_-\_Shimizu.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1831/partner\_1831\_-\_Shimizu.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.7090259,"longitude":139.7319925,"master\_project\_id":null,"name":"85 kW Shimizu Corporation Microgrid","om\_contractor":"","organization":"Ecoult","owner\_1":"N/A","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.ultrabattery.com/case-studies/case-studies-stationary/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":85,"size\_kwh":1.91666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":55.0,"state":"Tokyo","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Hybrid Lead-acid Battery/Electro-chemical capacitor","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-03-04T01:21:08Z","updated\_at\_by\_admin":"2015-09-09T22:12:35Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Furukawa Battery","zip":""}},{"project":{"announcement\_on":"2022-08-19","approval\_status":1,"city":"Kitakyushu","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@ecoult.com","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2015-08-19T01:00:59Z","created\_by\_id":351,"debt\_investor":"","decommissioning\_on":null,"desc":"Furukawa Battery has set up a 300kW smart grid demonstration system of UltraBattery® technology in the Maeda area in Kitakyushu. The load levelling application uses 336 Ultrabattery® cells (1000 Ah, 2 volts).","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1832,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1832/1832\_-\_Maeda\_Cropped.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1832/thumb\_1832\_-\_Maeda\_Cropped.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1832/partner\_1832\_-\_Maeda\_Cropped.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.8834093,"longitude":130.8752161,"master\_project\_id":null,"name":"Kitakyushu Smart Community Creation Project","om\_contractor":"","organization":"Ecoult","owner\_1":"N/A","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.ultrabattery.com/case-studies/case-studies-stationary/","primary\_reference1":"https://www.furukawa.co.jp/review/fr043/fr43\_02.pdf","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Load Following (Tertiary Balancing)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":300,"size\_kwh":1.11666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":7.0,"state":"Fukuoka Prefecture","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Hybrid Lead-acid Battery/Electro-chemical Capacitor","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-06T08:47:26Z","updated\_at\_by\_admin":"2015-10-27T20:56:07Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Furukawa Battery","zip":""}},{"project":{"announcement\_on":"2022-08-19","approval\_status":1,"city":"Kitakyushu","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@ecoult.com","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2015-08-19T01:00:59Z","created\_by\_id":351,"debt\_investor":"","decommissioning\_on":null,"desc":"Furukawa Battery has set up two smart grid demonstrations of UltraBattery® technology at Kitakyushu Museum of Natural History &amp; Human History.\r\n\r\nThe first is a 10kW facility peak shifting application that uses 32 Ultrabattery® cells (100 Ah, 6 volts). The second is a 100kW facility peak shifting application that uses 192 Ultrabattery® cells (500 Ah, 2 volts).","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1833,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1833/1833\_-\_Kitakyushu\_Museum\_of\_Natural\_History\_\_Japan\_.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1833/thumb\_1833\_-\_Kitakyushu\_Museum\_of\_Natural\_History\_\_Japan\_.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1833/partner\_1833\_-\_Kitakyushu\_Museum\_of\_Natural\_History\_\_Japan\_.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.8834093,"longitude":130.8752161,"master\_project\_id":null,"name":"110 kW Kitakyushu Museum of Natural History & Human History","om\_contractor":"","organization":"Ecoult","owner\_1":"N/A","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.ultrabattery.com/case-studies/case-studies-stationary/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":110,"size\_kwh":1.91666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":55.0,"state":"Fukuoka Prefecture","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Hybrid Lead-acid Battery/Electro-chemical capacitor","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-17T20:59:58Z","updated\_at\_by\_admin":"2015-09-09T22:02:01Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Furukawa Battery","zip":""}},{"project":{"announcement\_on":"2022-08-19","approval\_status":1,"city":"Altes Land","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"energysolutions@gildemeister.com","contact\_info\_visible":true,"contact\_name":"Lucienne Sproll","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2015-08-19T01:00:59Z","created\_by\_id":351,"debt\_investor":"","decommissioning\_on":null,"desc":"Fifth generation fruit grower Claus Haak with his farm in the wonderful Altes Land region near Hamburg has decided to generate as much of the energy he needs for cultivation through to the sale of his apples from renewable sources using a photovoltaic system and also to buffer this electricity in an energy storage system so it can be used on overcast days or at night. \r\n\r\nThe system utilizes a Gildemeister CellCube FB 10-100. The CellCube energy storage system is based on vanadium redox flow technology which allows for stable power supply. The Haak family has taken on a pioneering role in resource-saving energy generation and harbors the vision – one that will hopefully soon come true – of running the farm to 100% on the energy they produce themselves completely independently of the public electricity grid.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1834,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1834/1834\_Haak\_Cellcube.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1834/thumb\_1834\_Haak\_Cellcube.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1834/partner\_1834\_Haak\_Cellcube.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":53.6420342,"longitude":10.0603188,"master\_project\_id":null,"name":"10 kW / 100 kWh Haak Fruitfarm Gildemeister CellCube","om\_contractor":"","organization":null,"owner\_1":"Haak","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://energy.gildemeister.com/en/company/news/fruitfarm-haak-cellcube/315956","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"Hamburg","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-09-09T21:16:01Z","updated\_at\_by\_admin":"2015-09-09T21:14:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Gildemeister Energy Solutions","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Tokyo","commissioning\_on":"2022-07-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"energysolutions@gildemeister.com","contact\_info\_visible":true,"contact\_name":"Lucienne Sproll","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2015-08-19T01:00:59Z","created\_by\_id":351,"debt\_investor":"","decommissioning\_on":null,"desc":"DMG Mori Seiki Co. Ltd.’s new headquarters in Tokyo is secured against blackouts by CellCube storage systems. The new headquarters building relies on its own power generation and storage of that energy produced on-site. Three CellCube FB 10-100 units will be utilized to store the energy produced from the solar installation on the roof of the building.\r\n\r\nA small wind turbine, the WindCarrier, serves as an additional energy supplier. The WindCarrier, with its vertical rotation axis, has minimum space requirements – in this case it was placed in the city center of Tokyo on DMG MORI’s grounds. The idea of space-saving installations plays a vital role due to Tokyo’s lack of space. The energy project shows how energy can be produced safely and sustainably for on-site use. The energy produced is not only used for on-site consumption but also for peak shaving and emergency power supply.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1835,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1835/1835\_DMG\_MORI.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1835/thumb\_1835\_DMG\_MORI.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1835/partner\_1835\_DMG\_MORI.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.7090259,"longitude":139.7319925,"master\_project\_id":null,"name":"30 kW / 300 kWh DMG Mori Seiki Headquarters","om\_contractor":"","organization":null,"owner\_1":"DMG Mori Seiki Co. 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The system will be located in Magdeberg, Saxony-Anhalt where in 2011 well over 60% of the Saxony-Anhalt’s electricity came from renewable resources.\r\n\r\nBatteries can store electricity generated by solar and wind power when conditions are favorable, so it can be used when they are not. Electricity storage is the second part of the renewable energy solution. By investing in new battery systems, Germany is continuing down the path it started on to shift away from nuclear power.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1836,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":52.1205333,"longitude":11.6276237,"master\_project\_id":null,"name":"30 MW SK Innovation BESS","om\_contractor":"","organization":null,"owner\_1":"Saxony-Anhalt, Germany","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://cleantechnica.com/2014/10/27/30-mw-storage-battery-built-germany/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":30000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Saxony-Anhalt","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-21T21:08:54Z","updated\_at\_by\_admin":"2016-03-21T21:08:54Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"SK Innovation","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"N/A","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Saftpress.contact@saftbatteries.com","contact\_info\_visible":false,"contact\_name":"Jake Bartell","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Bolivia","created\_at":"2015-08-19T01:01:00Z","created\_by\_id":351,"debt\_investor":"","decommissioning\_on":null,"desc":"The project in Bolivia’s Pando department, on the border with Brazil and Peru, combines a 5 MW PV array with 16 MW diesel generation. Isotron SAU, a subsidiary of Spain’s Isastur Group, is responsible for the construction portion of the project and Saft was awarded the contract to supply the megawatt scale lithium-ion energy storage system.\r\n\r\nPando is in the remote tropical northern area of Bolivia in the Amazonian rain forest. It is not connected to the country’s national grid, resulting in electricity coverage of just 65 percent, with the 37 GWh demand met exclusively by diesel generation. With a total output of 21 MW, the new hybrid plant will increase the overall production of electricity in the Pando department, bringing it in line with the rest of Bolivia, which has electricity coverage of 80 percent.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1837,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1837/Pando\_Project.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1837/thumb\_Pando\_Project.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1837/partner\_Pando\_Project.jpg"}},"integrator\_company":"Isastur","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-10.7988901,"longitude":-66.9988011,"master\_project\_id":null,"name":"2.2 MW Pando Project ESS","om\_contractor":"","organization":"","owner\_1":"N/A","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.saftbatteries.com/press/press-releases/saft-megawatt-scale-li-ion-energy-storage-systems-will-support-world%E2%80%99s-largest","primary\_reference1":"http://saft-prod.cirrus-cloud.net/force\_download/CP\_48\_14\_Eng.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2200,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Pando Department","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T21:04:00Z","updated\_at\_by\_admin":"2015-09-02T00:17:35Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"Saft","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"N/A","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Korea, South","contact\_email":"woojin@wjis.co.kr","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2015-08-20T00:06:57Z","created\_by\_id":351,"debt\_investor":"","decommissioning\_on":null,"desc":"In this project, a microgrid is demonstrated in the smart grid real environment, where distributed generation systems, energy storages and loads constitute a highly reliable energy network system using IT to control the supply and the demand of power optimally and improve","developer":"","electronics\_provider":"Woojin Industrial Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1838,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1838/150kW\_Jeju\_Island\_PoscoICT.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1838/thumb\_150kW\_Jeju\_Island\_PoscoICT.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1838/partner\_150kW\_Jeju\_Island\_PoscoICT.jpg"}},"integrator\_company":"Posco ICT","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.4890113,"longitude":126.4983023,"master\_project\_id":null,"name":"150 kW Jeju Island Demonstration Site - Posco ICT","om\_contractor":"","organization":"Woojin Industrial Systems","owner\_1":"Posco ICT","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www-03.ibm.com/press/us/en/pressrelease/32927.wss","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":150,"size\_kwh":0.916666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":55.0,"state":"Jeju Province","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Valve Regulated Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-12T02:06:34Z","updated\_at\_by\_admin":"2015-09-01T23:05:09Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Woojin Industrial Systems","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"N/A","commissioning\_on":"2022-03-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Korea, South","contact\_email":"woojin@wjis.co.kr","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2015-08-20T00:06:58Z","created\_by\_id":351,"debt\_investor":"","decommissioning\_on":null,"desc":"This energy storage project is located at Woojin Industrial Systems 2nd Factory in North Chungcheong Province. The system consists of 288 kWh (lead-acid) battery capacity combined with a 150 kW power conversion system. The installation will be utilized for voltage drop compensation, grid backup, and measuring for grid voltage sag/swell.","developer":"","electronics\_provider":"Woojin Industrial Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1839,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1839/Woojin\_Industrial\_2nd\_Factory.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1839/thumb\_Woojin\_Industrial\_2nd\_Factory.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1839/partner\_Woojin\_Industrial\_2nd\_Factory.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.5184,"longitude":126.8,"master\_project\_id":null,"name":"Woojin Industrial Systems 2nd Factory","om\_contractor":"","organization":"Woojin Industrial Systems Co.., Ltd.","owner\_1":"Woojin Industrial Systems Co.., Ltd.","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.wjis.co.kr/Peak%20Electric%20Power%20Saving%20System\_03.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":150,"size\_kwh":1.91666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":55.0,"state":"North Chungcheong Province","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Valve Regulated Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-11T22:41:54Z","updated\_at\_by\_admin":"2015-09-01T22:49:44Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Woojin Industrial Systems","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Busan","commissioning\_on":null,"companion":"","construction\_on":"2022-11-01","contact\_city":"","contact\_country":"Korea, South","contact\_email":"woojin@wjis.co.kr","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2015-08-20T00:06:58Z","created\_by\_id":351,"debt\_investor":"","decommissioning\_on":null,"desc":"This energy storage project developed by LG CNS is located at Silla University in Busan, South Korea. The system consists of 1,800 kWh lithium-ion battery capacity combined with a 500 kW power conversion system made by Woojin Industrial Systems. The installation will be utilized for peak shifting and reducing the maximum demand of electric power.","developer":"","electronics\_provider":"Woojin Industrial Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1840,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1840/Silla\_University.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1840/thumb\_Silla\_University.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1840/partner\_Silla\_University.jpg"}},"integrator\_company":"LG CNS","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.1453713,"longitude":128.4622444,"master\_project\_id":null,"name":"Silla University (Busan) Energy Storage","om\_contractor":"","organization":"","owner\_1":"Silla University","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.wjis.co.kr/Peak%20Electric%20Power%20Saving%20System\_03.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":3.6,"size\_kwh\_hours":3,"size\_kwh\_minutes":36.0,"state":"Yeongnam","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-27T04:26:37Z","updated\_at\_by\_admin":"2015-09-01T22:26:01Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"LG Chem","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Seoul","commissioning\_on":null,"companion":"","construction\_on":"2022-12-01","contact\_city":"","contact\_country":"Korea, South","contact\_email":"woojin@wjis.co.kr","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2015-08-20T00:06:58Z","created\_by\_id":351,"debt\_investor":"","decommissioning\_on":null,"desc":"This energy storage project is located at Korail’s Wondang Station on Seoul Subway Line 3 near Goyang city hall. The system consists of 520 kWh lithium-ion battery capacity combined with a 1,000 kW power conversion system. The installation will be utilized for peak shifting and reducing the maximum demand of electric power.","developer":"","electronics\_provider":"Woojin Industrial Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1841,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1841/Korail\_Wondang\_Station.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1841/thumb\_Korail\_Wondang\_Station.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1841/partner\_Korail\_Wondang\_Station.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.566535,"longitude":126.9779692,"master\_project\_id":null,"name":"Korail Wondang Station","om\_contractor":"","organization":"Woojin Industrial Systems","owner\_1":"Korail","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.wjis.co.kr/Peak%20Electric%20Power%20Saving%20System\_03.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.516666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":31.0,"state":"Gyeonggi","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:21:34Z","updated\_at\_by\_admin":"2015-09-01T22:15:41Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Kokam","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Goyang","commissioning\_on":null,"companion":"","construction\_on":"2022-12-01","contact\_city":"","contact\_country":"Korea, South","contact\_email":"woojin@wjis.co.kr","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2015-08-20T00:06:58Z","created\_by\_id":351,"debt\_investor":"","decommissioning\_on":null,"desc":"This energy storage project is located at Korail’s Baekseok Station on Seoul Subway Line 3. The system consists of 520 kWh lithium-ion battery capacity combined with a 1,000 kW power conversion system. The installation will be utilized for peak shifting and reducing the maximum demand of electric power.","developer":"","electronics\_provider":"Woojin Industrial Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1842,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1842/Korail\_Baekseok\_Station.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1842/thumb\_Korail\_Baekseok\_Station.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1842/partner\_Korail\_Baekseok\_Station.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.6583599,"longitude":126.8320201,"master\_project\_id":null,"name":"Korail Baekseok Station","om\_contractor":"","organization":"Woojin Industrial Systems","owner\_1":"Korail","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.wjis.co.kr/Peak%20Electric%20Power%20Saving%20System\_03.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.516666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":31.0,"state":"Gyeonggi","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:22:46Z","updated\_at\_by\_admin":"2015-09-01T21:42:19Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Woojin Industrial Systems","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Seoul","commissioning\_on":null,"companion":"","construction\_on":"2022-12-01","contact\_city":"","contact\_country":"Korea, South","contact\_email":"woojin@wjis.co.kr","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2015-08-20T00:06:58Z","created\_by\_id":351,"debt\_investor":"","decommissioning\_on":null,"desc":"This energy storage project is located at Seoul Metro’s Euljiro 3(sam)-ga Station on the Seoul Subway Line 2 and Seoul Subway Line 3. The system consists of 740 kWh lithium-ion battery capacity combined with a 1,000 kW power conversion system. The installation will be utilized for peak shifting and reducing the maximum demand of electric power.","developer":"","electronics\_provider":"Woojin Industrial Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1843,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1843/Seoul\_Metro\_Euljiro\_3.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1843/thumb\_Seoul\_Metro\_Euljiro\_3.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1843/partner\_Seoul\_Metro\_Euljiro\_3.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.566535,"longitude":126.9779692,"master\_project\_id":null,"name":"Seoul Metro Euljiro 3(sam)-ga Station","om\_contractor":"","organization":"Woojin Industrial Systems","owner\_1":"Seoul Metro","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.wjis.co.kr/Peak%20Electric%20Power%20Saving%20System\_03.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.733333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":44.0,"state":"Gyeonggi","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:24:11Z","updated\_at\_by\_admin":"2015-09-01T21:39:39Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Woojin Industrial Systems","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Cheongju","commissioning\_on":null,"companion":"","construction\_on":"2022-12-01","contact\_city":"","contact\_country":"Korea, South","contact\_email":"woojin@wjis.co.kr","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2015-08-20T00:06:59Z","created\_by\_id":351,"debt\_investor":"","decommissioning\_on":null,"desc":"This energy storage project is located at Chungbuk National University Hospital. The system consists of 270 kWh lithium-ion battery capacity combined with a 250 kW power conversion system. The installation will be utilized for peak shifting and reducing the maximum demand of electric power.","developer":"","electronics\_provider":"Woojin Industrial Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1844,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1844/Chungbuk\_National\_University\_Hospital.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1844/thumb\_Chungbuk\_National\_University\_Hospital.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1844/partner\_Chungbuk\_National\_University\_Hospital.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.6424341,"longitude":127.4890319,"master\_project\_id":null,"name":"Chungbuk National University Hospital","om\_contractor":"","organization":"Woojin Industrial Systems Co., Ltd.","owner\_1":"Korea Energy Management Corporation","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.wjis.co.kr/Peak%20Electric%20Power%20Saving%20System\_03.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":1.08333333333333,"size\_kwh\_hours":1,"size\_kwh\_minutes":5.0,"state":"North Chungcheong Province","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-29T08:01:59Z","updated\_at\_by\_admin":"2015-09-01T21:31:06Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Woojin Industrial Systems","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Seoul","commissioning\_on":null,"companion":"","construction\_on":"2022-12-01","contact\_city":"","contact\_country":"Korea, South","contact\_email":"woojin@wjis.co.kr","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2015-08-20T00:06:59Z","created\_by\_id":351,"debt\_investor":"","decommissioning\_on":null,"desc":"This energy storage project is located at Korea Testing Laboratory in the Gangbuk District of Seoul. The system consists of 341 kWh lithium-ion battery capacity combined with a 250 kW power conversion system. The installation will be utilized for peak shifting and reducing the maximum demand of electric power.","developer":"","electronics\_provider":"Woojin Industrial Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1845,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1845/Korea\_Testing\_Laboratory.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1845/thumb\_Korea\_Testing\_Laboratory.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1845/partner\_Korea\_Testing\_Laboratory.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.566535,"longitude":126.9779692,"master\_project\_id":null,"name":"Korea Testing Laboratory","om\_contractor":"","organization":"Woojin Industrial Systems Co., Ltd.","owner\_1":"Korea Energy Management Corporation","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.wjis.co.kr/Peak%20Electric%20Power%20Saving%20System\_03.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":1.33333333333333,"size\_kwh\_hours":1,"size\_kwh\_minutes":20.0,"state":"Gyeonggi","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-02T04:21:06Z","updated\_at\_by\_admin":"2015-09-01T21:25:18Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Woojin Industrial Systems","zip":""}},{"project":{"announcement\_on":"2022-01-01","approval\_status":1,"city":"Silvretta Montafon","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"guntram.innerhofer@illwerke.at; wolfgang.richter@tugraz.at; info@illwerke.at","contact\_info\_visible":false,"contact\_name":"Guntram Innerhofer; Wolfgang Richter","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":691340000.0,"cost\_OPEX":null,"country":"Austria","created\_at":"2015-08-25T00:37:37Z","created\_by\_id":1,"debt\_investor":"European Investment Bank","decommissioning\_on":null,"desc":"The 360 MW pumped-storage plant is designed to reduce network losses and will add balancing capacity to the network and provide additional regulating energy. The project will be Illwerke's second-largest power station once put into operation in 2018. The plant is designed as an underground station between the Silvretta and Vermunt reservoirs parallel to the existing Obervermuntwerk project.","developer":"","electronics\_provider":"Alstom","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1846,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1846/Obervermuntwerk\_2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1846/thumb\_Obervermuntwerk\_2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1846/partner\_Obervermuntwerk\_2.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.0645191,"longitude":9.9319848,"master\_project\_id":null,"name":"Obervermuntwerk 2","om\_contractor":"","organization":null,"owner\_1":"Illwerke AG","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.hydroworld.com/articles/2014/07/eib-provides-loan-for-austrian-pumped-storage-hydropower-project.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":360000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Vorarlberg","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Pumped Hydro Storage","technology\_type\_l1":"Pumped Hydro Storage","technology\_type\_l2":"Pumped Hydro","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-03-21T21:02:54Z","updated\_at\_by\_admin":"2016-03-21T21:02:54Z","updated\_by":null,"updated\_by\_email":null,"utility":"Illwerke AG","utility\_type":"State/Municipal Owned","vendor\_company":"Voith","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Lewisburg","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"guy.frankenfield@dntanks.com","contact\_info\_visible":true,"contact\_name":"Guy Frankenfield","contact\_phone":"972-823-3300","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"H.F. Lenz","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-08-25T00:37:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In 2013, Bucknell University selected DN Tanks to design and build a 0.9 million gallon Thermal Energy Storage (TES) tank through a competitive bid process. H.F. Lenz provided the specifications and drawings for the TES system. The TES tank is designed for 6,500 ton-hrs of useable thermal storage capacity. In 2013 and before the TES system was in operation, the electric load peaked at over 2,000 kW. Then, on a comparable day in 2014 and with the TES in operation, the electric load was just over 1,000 kW.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1847,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1847/DN\_Tanks\_Bucknell.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1847/thumb\_DN\_Tanks\_Bucknell.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1847/partner\_DN\_Tanks\_Bucknell.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.9645293,"longitude":-76.8844101,"master\_project\_id":null,"name":"Bucknell University Thermal Energy Storage","om\_contractor":"","organization":"","owner\_1":"Bucknell University","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.dntanks.com/projects/thermal-energy-storage-for-bucknell-university/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Pennsylvania","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-12-08T00:46:08Z","updated\_at\_by\_admin":"2015-09-01T20:56:59Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"DN Tanks","zip":""}},{"project":{"announcement\_on":"2022-08-25","approval\_status":1,"city":"Vicenza","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"guy.frankenfield@dntanks.com","contact\_info\_visible":true,"contact\_name":"Guy Frankenfield","contact\_phone":"972-823-3300","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Rosser International Inc.","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2015-08-25T00:37:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Dal Molin is located in a heavily populated area that was the former site of an Italian air base in Vicenza, Italy. The site was transferred from the Italian military to the U.S. Army in order to create a large, urban campus fit for residential and operational buildings.\r\nWith efforts to optimize energy use, the U.S. Army constructed a new central energy plant which provides energy for the Dal Molin campus and utilizes fossil fuels to generate electricity and heat. The design of the new energy system is estimated to reduce total energy use and save more than 42 percent of the annual costs. A significant portion of this energy and cost savings is attributed to a Thermal Energy Storage (TES) tank, which allows the central energy plant to reduce their peak electric load and subsequently their energy costs.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1848,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1848/DN\_Tanks\_Dal\_Molin\_Crop.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1848/thumb\_DN\_Tanks\_Dal\_Molin\_Crop.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1848/partner\_DN\_Tanks\_Dal\_Molin\_Crop.jpg"}},"integrator\_company":"CMC-Ravenna","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":45.5454787,"longitude":11.5354214,"master\_project\_id":null,"name":"Dal Molin Thermal Energy Storage","om\_contractor":"","organization":"DN Tanks","owner\_1":"U.S. Federal Government","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.dntanks.com/projects/thermal-energy-storage-tank-in-vicenza-italy/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":400,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Veneto","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-01-05T01:36:26Z","updated\_at\_by\_admin":"2015-09-01T00:29:13Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"DN Tanks","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Kashiwa City","commissioning\_on":"2022-05-01","companion":"220 kW Solar Power Generator, Emergency Gas-Powered Generator","construction\_on":"2022-03-01","contact\_city":"","contact\_country":"","contact\_email":"info@hitachi-chem.co.jp","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2015-08-25T00:37:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The battery system is to be connected to the Kashiwa-no-ha Area Energy Management System (AEMS) that Hitachi installed in Kashiwa-no-ha Smart City, and will support power pooling, supply-demand fluctuation management, and emergency power maintenance during power cuts. The battery system comprises 13,824 Hitachi Chemical lithium-ion batteries (CH75) provided by Hitachi Chemical, and boasts a number of outstanding features such as a long operating life, large-current charge-discharge, and a high-rigidity structure. Charge-discharge of these lithium-ion batteries is managed through a connection to Hitachi’s 500 kW Power Conditioning System (PCS). The system is able to provide 3.8 MWh of energy making it one of the largest systems in Japan.","developer":"Mitsui Fudosan Co., Ltd.","electronics\_provider":"Hitachi","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1849,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1849/Kashiwa\_Smart\_City.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1849/thumb\_Kashiwa\_Smart\_City.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1849/partner\_Kashiwa\_Smart\_City.jpg"}},"integrator\_company":"Hitachi","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.8676124,"longitude":139.9758505,"master\_project\_id":null,"name":"500 kW Kashiwa Smart City Hitachi Li-ion AEMS - Mitsui Fudosan Co., Ltd.","om\_contractor":"","organization":"Hitachi","owner\_1":"Mitsui Fudosan Co., Ltd.","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.hitachi-chem.co.jp/english/information/2014/n\_140428.html","primary\_reference1":"http://www.mitsuifudosan.co.jp/english/corporate/news/2014/0424\_01/index.html","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Load Following (Tertiary Balancing)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":7.66666666666667,"size\_kwh\_hours":7,"size\_kwh\_minutes":40.0,"state":"Chiba Prefecture","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-27T04:04:11Z","updated\_at\_by\_admin":"2015-09-01T20:28:22Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Hitachi Chemical","zip":""}},{"project":{"announcement\_on":"2022-08-18","approval\_status":1,"city":"IESO (TBD)","commissioning\_on":"2022-03-31","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"david.mintzer@viznenergy.com; media@ieso.ca","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2015-08-25T00:37:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Ontario Independent Electricity System Operator (IESO) is continuing to build out their energy storage capabilities. Hecate Energy has a contract for part of that build out and recently chose technology provider ViZn Energy Systems Inc. (ViZn) to provide a 2 MW / 6 MWh zinc-iron redox flow battery system for the provision of ancillary services to the Ontario grid operated by the IESO.","developer":"Hecate Energy","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1850,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1850/ViZn\_2\_MW\_Hecate\_Energy\_-\_GS200-1MW\_\_2\_.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1850/thumb\_ViZn\_2\_MW\_Hecate\_Energy\_-\_GS200-1MW\_\_2\_.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1850/partner\_ViZn\_2\_MW\_Hecate\_Energy\_-\_GS200-1MW\_\_2\_.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":51.253775,"longitude":-85.3232139,"master\_project\_id":null,"name":"2 MW / 6 MWh ViZn Energy - Ontario IESO Project - Hecate Energy","om\_contractor":"","organization":null,"owner\_1":"IESO","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.marketwatch.com/story/vizn-energy-systems-2mw-zinc-iron-redox-flow-battery-system-selected-by-hecate-energy-for-ontario-ieso-project-2015-08-18","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Ontario","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Iron Flow Battery","technology\_type\_l1":"Other","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-12-04T18:36:10Z","updated\_at\_by\_admin":"2015-12-04T18:36:10Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"ViZn","zip":""}},{"project":{"announcement\_on":"2022-03-25","approval\_status":1,"city":"Dukhan","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Saftpress.contact@saftbatteries.com","contact\_info\_visible":true,"contact\_name":"Jill Ledger","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Qatar","created\_at":"2015-08-25T00:37:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Kentz is currently working on a 190 million dollar contract for Qatar Petroleum to provide a dedicated Supervisory Control and Data Acquisition (SCADA) network infrastructure to monitor the 775 wellheads in the Dukhan Oilfield from designated stations. \r\nSaft, has been awarded a contract by Kentz to supply its Sunica.plus batteries for critical solar powered systems serving Qatar Petroleum’s Dukhan oilfield. Over the next two years, some 40,000 of the nickel-based Sunica.plus batteries will be deployed at around 775 wells across the oilfield, where they will provide energy storage and backup power for wellhead industrial control systems and corrosion protection systems.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1851,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1851/Dukhan\_oil\_field.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1851/thumb\_Dukhan\_oil\_field.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1851/partner\_Dukhan\_oil\_field.jpg"}},"integrator\_company":"Kentz","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":25.4280036,"longitude":50.7833068,"master\_project\_id":null,"name":"Dukhan Oil Field","om\_contractor":"","organization":null,"owner\_1":"Qatar Petroleum","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.businesswire.com/news/home/20150325006117/en/Saft-Wins-10-Million-Dollar-Energy-Storage#.VduIcflVikp","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Al Rayyan","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Nickel-cadmium Battery","technology\_type\_l1":"Nickel-cadmium Battery","technology\_type\_l2":"Nickel based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-29T18:28:38Z","updated\_at\_by\_admin":"2015-10-29T18:28:38Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Saft","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"New York","commissioning\_on":null,"companion":"","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"","contact\_email":"swelch@vantagepr.com","contact\_info\_visible":true,"contact\_name":"Sean Welch","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-08-25T00:37:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Beneath the trading floors of Goldman Sachs Group Inc.’s Manhattan headquarters are 92 tanks for ice thermal storage. Goldman runs chilled anti-freeze through pipes connected to the 11-ton vessels during summer nights -- when power costs less -- to freeze the water. That ice is used the next day in its air-conditioning system, when high-demand electricity comes with a surcharge. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1852,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1852/Goldman\_Headquarters\_Calmac.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1852/thumb\_Goldman\_Headquarters\_Calmac.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1852/partner\_Goldman\_Headquarters\_Calmac.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.7148476,"longitude":-74.0142077,"master\_project\_id":null,"name":"Goldman Sachs Manhattan Headquarters","om\_contractor":"","organization":"","owner\_1":"Goldman Sachs Group Inc.","owner\_2":"","owner\_type":"3","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.bloomberg.com/news/articles/2014-08-01/goldman-s-icy-arbitrage-draws-interest-to-meet-epa-rule","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"New York","status":"Operational","street\_address":"200 West St","systems\_integration":"","technology\_classification":"","technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-11-29T23:34:58Z","updated\_at\_by\_admin":"2015-08-31T23:19:50Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"CALMAC Manufacturing Corp.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Escondido","commissioning\_on":"2022-02-03","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"mgriesemer@baker-electric.com","contact\_info\_visible":true,"contact\_name":"Mark Griesemer","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-08-25T00:37:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In February 2015, Baker Electric installed the Smart Storage energy storage solution at their corporate headquarters in Escondido. The 30 kW energy storage system is coupled with an existing 85 kW solar system to help cap expensive utility demand charges. ","developer":"","electronics\_provider":"Sharp / Ideal Power","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1853,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1853/Baker\_Electric\_30kW.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1853/thumb\_Baker\_Electric\_30kW.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1853/partner\_Baker\_Electric\_30kW.jpg"}},"integrator\_company":"Baker Electric","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.107254,"longitude":-117.117067,"master\_project\_id":null,"name":"30 kW Smart Storage at Baker Electric Corporate Headquarters","om\_contractor":"","organization":"Baker Electric","owner\_1":"Baker Electric","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.baker-electric.com/projects-experience/project-profiles-battery-storage/case-study-smart-storage-at-baker-electric/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":30,"size\_kwh":2.66666666666667,"size\_kwh\_hours":2,"size\_kwh\_minutes":40.0,"state":"California","status":"Operational","street\_address":"1298 Pacific Oaks Place","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-13T03:45:50Z","updated\_at\_by\_admin":"2016-08-13T03:45:50Z","updated\_by":null,"updated\_by\_email":null,"utility":"SCE","utility\_type":"Investor Owned","vendor\_company":"Samsung","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Star Island","commissioning\_on":"2022-06-27","companion":"130 kW Solar","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"board@starisland.org","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Ayer Electric","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-08-25T00:37:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"New Hampshire’s Star Island boasts the largest off-grid solar farm in New England. The installation includes a 130 kW solar installation as well as a 600 kW battery system which has replaced a couple of diesel generators. Star Island is 6 miles off the coast and before the microgrid project had to rely on diesel power for their electricity needs.","developer":"","electronics\_provider":"Schneider Electric","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1854,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1854/Star\_Island\_Crop.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1854/thumb\_Star\_Island\_Crop.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1854/partner\_Star\_Island\_Crop.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":42.9765042,"longitude":-70.6130009,"master\_project\_id":null,"name":"Star Island Microgrid","om\_contractor":"","organization":" Star Island Power, LLC","owner\_1":"Star Island Power, LLC","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://nhpr.org/post/granite-geek-solar-microgrid-star-island-may-be-model-mainland","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":600,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"New Hampshire","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-23T19:24:53Z","updated\_at\_by\_admin":"2015-09-01T18:23:13Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Exide","zip":""}},{"project":{"announcement\_on":"2022-05-28","approval\_status":1,"city":"Dublin","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jim.devlin@fticonsulting.com","contact\_info\_visible":true,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Ireland","created\_at":"2015-08-25T17:27:19Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"Gaelectric and Tesla today announced the purchase and planned deployment of Tesla Energy's first battery power utility-scale project in Ireland. The initial demonstration project, 1-MW in size, is targeted for deployment in 2016. Tesla and Gaelectric are focused on exploring the development and demonstration of innovative business models for energy storage within transmission systems. ","developer":"Gaelectric","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1856,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":53.3498053,"longitude":-6.2603097,"master\_project\_id":null,"name":"Dublin, Ireland - Gaelectric, Tesla - 1 MW BESS","om\_contractor":"","organization":null,"owner\_1":"Gaelectric","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.prnewswire.com/news-releases/tesla-and-gaelectric-to-introduce-tesla-battery-storage-to-ireland-505326471.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Leinster","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-27T21:06:50Z","updated\_at\_by\_admin":"2015-09-01T20:07:38Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Tesla Energy","zip":""}},{"project":{"announcement\_on":"2022-08-04","approval\_status":1,"city":"Whitemark","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"david.butler@hydro.com.au","contact\_info\_visible":true,"contact\_name":"David Butler","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"RF Industries","contractor\_2":"","contractor\_3":"","cost\_CAPEX":12880000.0,"cost\_OPEX":null,"country":"Australia","created\_at":"2015-08-25T18:34:17Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"Hydro Tasmania has signed contracts totaling nearly $4 million for work on its renewable energy and storage project on Flinders Island, with Toshiba winning the contract for the supply of battery cells.\r\n\r\nThe Flinders Island Hybrid Energy Hub – announced earlier this year – will significantly increase renewable energy use on the island and reduce the use and importation of expensive diesel fuel by up to 60 per cent","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":5500000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Australian Renewable Energy Agency (ARENA)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1857,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1857/Flinders\_Island\_Toshiba\_Australia.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1857/thumb\_Flinders\_Island\_Toshiba\_Australia.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1857/partner\_Flinders\_Island\_Toshiba\_Australia.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-40.1202414,"longitude":148.0156993,"master\_project\_id":null,"name":"Flinders Island - Hydro Tasmania","om\_contractor":"","organization":null,"owner\_1":"Hydro Tasmania","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://cleantechnica.com/2015/08/04/toshiba-wins-contract-to-supply-battery-cells-for-flinders-island-hybrid-energy-hub/?utm\_source=feedburner&utm\_medium=feed&utm\_campaign=Feed%3A+IM-cleantechnica+%28CleanTechnica%29","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"ARENA has two objectives: 1. Improve the competitiveness of renewable energy technologies 2. Increase the supply of renewable energy in Australia","research\_institution":"Australian Renewable Energy Agency (ARENA)","research\_institution\_link":"http://arena.gov.au/","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Resiliency","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Tasmania","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-01-12T23:11:06Z","updated\_at\_by\_admin":"2016-01-12T23:11:06Z","updated\_by":null,"updated\_by\_email":null,"utility":"Hydro Tasmania","utility\_type":"State/Municipal Owned","vendor\_company":"Toshiba","zip":""}},{"project":{"announcement\_on":"2022-05-01","approval\_status":1,"city":"Potsdam","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"todd.alhart@ge.com","contact\_info\_visible":true,"contact\_name":"Todd Alhart","contact\_phone":"518-387-7914","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-08-25T19:31:01Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"The microgrid will use local renewable resources as much as possible. The proposal calls for 3 megawatts (MW) of combined heat and power generators, 2 MW of solar PV, 2 MW of storage, and 900 kW or more of hydropower\r\nA $1.2 million grant from the DOE’s Office of Electricity Delivery and Energy Reliability and a $300,000 investment from GE will be used to develop an enhanced microgrid control system (eMCS). The control system will keep the town’s electricity on for several days if the main power station goes down, and will also help National Grid better integrate distributed energy resources into the grid. The microgrid will normally operate in a grid-connected mode. The eMCS will also be used to maximize the operating revenue of any individuals who have their own distributed generation systems. While studies are still being conducted, the hope is that during an extreme event when the main grid goes down, the microgrid will operate in island mode and use energy storage to help power essential services for up to two weeks. These services include SUNY Potsdam, Clarkson University, and critical municipal and emergency facilities such as local police, fire, hospital, potential shelter locations, and water/sewer facilities.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":1200000.0,"funding\_amount\_2":300000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"Private/Third Party RD&D","funding\_source\_3":"","funding\_source\_details\_1":"DOE’s Office of Electricity Delivery and Energy Reliability","funding\_source\_details\_2":"GE Global Research","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1858,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":44.6697805,"longitude":-74.9813084,"master\_project\_id":null,"name":"2 MW Potsdam, New York - Microgrid","om\_contractor":"","organization":null,"owner\_1":"National Grid","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.geglobalresearch.com/news/press-releases/ge-utility-government-academia-partner-underground-microgrid-project-improve-electricity-reliability-nys-north-country","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"The National Renewable Energy Laboratory does advanced research on all of the latest technologies in renewable energy and storage as well as how to implement them into the existing grid.","research\_institution":"National Renewable Energy Laboratory (NREL)","research\_institution\_link":"http://www.nrel.gov/","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"New York","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-09-01T18:54:23Z","updated\_at\_by\_admin":"2015-08-31T17:46:22Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Kiholo Bay","commissioning\_on":"2022-07-10","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"gene@trevicomm.com; press@aquion-energy.com","contact\_info\_visible":false,"contact\_name":"Gene Hunt; Elizabeth Pond","contact\_phone":"412-904-6460","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Renewable Energy Services, Inc.","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-08-25T20:51:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The 512-panel array at the Bakken Estate at Kiholo Bay is generating enough electricity to power the residence while reducing its carbon footprint to almost nothing. Energy from the 177 kW array flows into a 2,500-square-foot air conditioned control and battery room where massive banks of Aquion batteries store the electricity in a 1 MWh system. The system replaces three 150 kW propane generators that had been in use for 23 years prior to the microgrid installation.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1859,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1859/bakken\_microgrid.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1859/thumb\_bakken\_microgrid.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1859/partner\_bakken\_microgrid.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":19.8547732,"longitude":-155.9233432,"master\_project\_id":null,"name":"Bakken Hale Microgrid","om\_contractor":"","organization":"Trevi Communications; Aquion Energy","owner\_1":"Earl Bakken","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://westhawaiitoday.com/news/local-news/thing-solar-micro-grid-meets-estate-s-power-needs-and-then-some","primary\_reference1":"http://blog.aquionenergy.com/solar-microgrid","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":450,"size\_kwh":2.25,"size\_kwh\_hours":2,"size\_kwh\_minutes":15.0,"state":"Hawaii","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-ion Battery","technology\_type\_l1":"Sodium-ion Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-05T00:14:52Z","updated\_at\_by\_admin":"2016-05-19T19:32:26Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Aquion Energy","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Kailua-Kona","commissioning\_on":"2022-05-01","companion":"","construction\_on":"2022-03-01","contact\_city":"Kailuna-Kona","contact\_country":"United States","contact\_email":"laurences@nelha.org; gb@nelha.org","contact\_info\_visible":false,"contact\_name":"Laurence Sombardier; Gregory Barbour","contact\_phone":"808-327-9585 x244","contact\_state":"Hawaii","contact\_street\_address":"73-4460 Queen Kaahumanu Highway, #101","contact\_zip":"96740","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-08-25T20:51:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Natural Energy Laboratory of Hawaii Authority (NELHA) and Sandia National Laboratories (SNL) have been working together to bring online and evaluate the first of three ESS systems to be installed at NELHA’s new energy storage test bed. The 21.9 kWh M100 battery module by Aquion Energy Inc. was installed in March 2015 by Hawaii Island based Renewable Energy Services.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"Federal/National","funding\_source\_3":"State/Provincial/Regional","funding\_source\_details\_1":"Battery and other related equipment, installation, permitting","funding\_source\_details\_2":"PV","funding\_source\_details\_3":"SCADA system, permitting","gmaps":true,"hidden":false,"id":1860,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1860/NELHA\_Aquion.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1860/thumb\_NELHA\_Aquion.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1860/partner\_NELHA\_Aquion.jpg"}},"integrator\_company":"Renewable Energy Services, Inc.","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":19.7151873,"longitude":-156.0343769,"master\_project\_id":"","name":"Natural Energy Laboratory of Hawaii Authority (NELHA) - Aquion Energy","om\_contractor":"","organization":null,"owner\_1":"Natural Energy Laboratory of Hawaii Authority (NELHA)","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://nelha.hawaii.gov/wp-content/uploads/2013/08/NELHA-Energy-Storage-Press-Release-FINAL-4\_14\_15.pdf","primary\_reference1":null,"projected\_lifetime":"15.0","rdd\_status":"Yes","research\_desc":"NELHA administers the world's premier energy and ocean technology park.","research\_institution":"NELHA","research\_institution\_link":"www.nelha.org","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10,"size\_kwh":2.16666666666667,"size\_kwh\_hours":2,"size\_kwh\_minutes":10.0,"state":"Hawaii","status":"Operational","street\_address":"73-4460 Queen Kaahumanu Highway, #101","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-ion Battery","technology\_type\_l1":"Sodium-ion Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-08T01:12:18Z","updated\_at\_by\_admin":"2016-04-08T01:12:18Z","updated\_by":null,"updated\_by\_email":null,"utility":"Hawaiian Electric Company","utility\_type":"Investor Owned","vendor\_company":"Aquion Energy","zip":"96740"}},{"project":{"announcement\_on":"2022-05-14","approval\_status":1,"city":"Mililani","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"nick.dizon@nidoncomputer.com","contact\_info\_visible":true,"contact\_name":"Nick Dizon","contact\_phone":"808-478-4325","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-08-25T20:51:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"NIDON Clean Energy, in partnership with ZBB Energy Corporation and Aquion Energy, is providing Mari's Gardens a renewable energy system to power their aquaponics operation. Mari's Gardens received a USDA Rural Development REAP grant for Energy Efficiency and Renewable Energy Projects. The funds will be used to provide solar power and battery storage.","developer":"NIDON Clean Energy","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":123338.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"USDA REAP Grant","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1862,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1862/maris\_gardens.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1862/thumb\_maris\_gardens.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1862/partner\_maris\_gardens.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":21.4513314,"longitude":-158.0152807,"master\_project\_id":null,"name":"Mari's Gardens Aquion Energy","om\_contractor":"","organization":null,"owner\_1":"Mari's Gardens","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.nidoncomputer.com/in-the-news/solarpowerandbatterystoragepowerslocalfarm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Hawaii","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-ion Battery","technology\_type\_l1":"Sodium-ion Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-08-26T17:36:14Z","updated\_at\_by\_admin":"2015-08-26T17:35:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Aquion Energy","zip":""}},{"project":{"announcement\_on":"2022-05-01","approval\_status":1,"city":"Shenzhen","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ir@highpowertech.com","contact\_info\_visible":true,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2015-08-27T22:26:13Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"Highpower International, Inc. , developer, manufacturer, and marketer of lithium and nickel-metal hydride (Ni-MH) rechargeable batteries, management systems and recycling services has secured a contract to produce a 100KWH energy storage system (ESS) for China Southern Power Grid Co., Ltd. (CSPG). This ESS system is designed to maintain a balance of supply and demand over the south China grid as part of a long-term energy storage project developed by CSPG. While financial terms of the agreement were not disclosed, the contract is expected to be filled, with all batteries and battery management system (BMS) delivered, by the end of May 2015.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1866,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":22.543099,"longitude":114.057868,"master\_project\_id":null,"name":"China Southern Power Grid - Highpower International - 100 kWh ESS","om\_contractor":"","organization":null,"owner\_1":"China Southern Power Grid Co., Ltd.","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.prnewswire.com/news-releases/highpower-international-awarded-energy-storage-project-from-china-southern-power-grid-300075868.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Load Following (Tertiary Balancing)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Guangdong","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-09-01T18:31:25Z","updated\_at\_by\_admin":"2015-08-31T18:06:43Z","updated\_by":null,"updated\_by\_email":null,"utility":"China Southern Power Grid Co., Ltd.","utility\_type":"","vendor\_company":"Highpower International Inc.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Dundalk","commissioning\_on":"2022-08-26","companion":"On-site Wind","construction\_on":null,"contact\_city":"Dundalk","contact\_country":"Ireland","contact\_email":"info@dkit.ie","contact\_info\_visible":false,"contact\_name":"Centre for Renewable Energy at Dundalk IT","contact\_phone":"+353-0429370200","contact\_state":"County Louth","contact\_street\_address":"Dundalk Institute of Technology, Dublin Rd.","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Ireland","created\_at":"2015-09-02T17:23:20Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"CALMAC installed its IceBank energy storage tanks at the Dundalk Institute of Technology (DkIT) in Ireland.\r\n\r\nA large commercial on-campus wind turbine creates energy for the making of ice, which is then stored in the tanks. The next day, the ice is melted to cool the historic PJ Carroll building when it is full of occupants and the outside temperatures are at their highest and demand for electricity is peaking.\r\n\r\nIn 2012 alone, the wind turbine equipped with energy storage was able to produce 1,440 MWh, 79 percent of which was consumed by the university with the remaining sold back to the grid. The turbine generates 40 percent of the campus’ electrical energy requirements.\r\n\r\n","developer":"CALMAC","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1868,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1868/DundalkIT\_ES\_Tanks.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1868/thumb\_DundalkIT\_ES\_Tanks.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1868/partner\_DundalkIT\_ES\_Tanks.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":53.9830884,"longitude":-6.3951973,"master\_project\_id":null,"name":"Dundalk Institute of Technology (DkIT) Wind Turbine Energy Storage - CALMAC ","om\_contractor":"","organization":"","owner\_1":"Dundalk Institute of Technology (DkIT)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.calmac.com/dundalk-institute-of-technology-dkit","primary\_reference1":"http://www.energymanagertoday.com/irish-college-stores-energy-from-wind-turbine-093707/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":4560,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"County Louth","status":"Operational","street\_address":"Dublin Road","systems\_integration":"","technology\_classification":"","technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-11-22T22:41:07Z","updated\_at\_by\_admin":"2016-05-17T20:53:14Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"CALMAC","zip":"A91 K584"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Oshawa","commissioning\_on":null,"companion":"","construction\_on":"2022-11-01","contact\_city":"Oshawa","contact\_country":"Canada","contact\_email":"gradstudies@uoit.ca","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"ON","contact\_street\_address":"2000 Simcoe Street North,","contact\_zip":"L1H 7K4","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2015-09-03T20:55:57Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"The Microgrid Research and Innovation Park will develop and demonstrate a functioning ‘grid-tied’ microgrid at the University of Ontario Institute of Technology (UOIT) campus in Oshawa. A 500kW Lithium ion (Li-ion) battery energy storage system, inverter system, 50kW solar PV generation and microgrid controller/optimizer will be integrated with the existing 1.6MW diesel and 2.4MW Combined Heat and Power (CHP) generation plants for this microgrid. The islanded microgrid will power first-priority critical loads during grid interruptions that are isolated from the grid until overall power is restored.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":3829000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Ontario Ministry of Energy Smart Grid Fund","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1869,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":43.8970929,"longitude":-78.8657912,"master\_project\_id":null,"name":"500 kW - Microgrid Research and Innovation Park at University of Ontario Institute of Technology (UOIT)","om\_contractor":"","organization":"University of Ontario Institute of Technology","owner\_1":"University of Ontario Institute of Technology (UOIT)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.energy.gov.on.ca/en/smart-grid-fund/smart-grid-fund-projects/panasonic-eco-solutions-canada/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Ontario","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-27T03:46:10Z","updated\_at\_by\_admin":"2016-05-10T00:11:00Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-11-01","approval\_status":1,"city":"Wettringen","commissioning\_on":"2022-09-01","companion":"","construction\_on":"2022-06-01","contact\_city":"","contact\_country":"Germany","contact\_email":"Stefan.nykamp@westnetz.de","contact\_info\_visible":true,"contact\_name":"Stefan Nykamp","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2015-09-08T12:27:33Z","created\_by\_id":352,"debt\_investor":"","decommissioning\_on":null,"desc":"Mobile storage system as an alternative to conventional grid reinforcement. Storage assets are seen as an important element in the context of energy transition processes and the development of smart grids. In this case, the usage is beneficial for the integration of PV systems of rural areas in the grid because the reinforcement in the grid is only required for a time period of 5 years and would otherwise be left as a stranded capital investment.","developer":"","electronics\_provider":"Parker Hannifin","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1870,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1870/image.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1870/thumb\_image.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1870/partner\_image.jpg"}},"integrator\_company":"Parker Hannifin","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":52.2323411,"longitude":7.2892253,"master\_project\_id":null,"name":"250 kW / 1 MWh ElChe Wettringen","om\_contractor":"","organization":"Westnetz GmbH","owner\_1":"RWE Deutschland AG/Westnetz GmbH","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://blog.parker.com/renewable-energy-generation:-the-importance-of-energy-storage?hootPostID=5adc67bd8af2be6344b383f8f48a546d","primary\_reference1":"https://iam.innogy.com/en/ueber-innogy/innogy-innovation-technik/energiespeicherung","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Northrine Westfalia","status":"Operational","street\_address":"Brechte 19","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-02T04:28:47Z","updated\_at\_by\_admin":"2016-09-19T22:19:13Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"LG Chem","zip":"48493"}},{"project":{"announcement\_on":"2022-05-22","approval\_status":1,"city":"St. Petersburg ","commissioning\_on":null,"companion":"100 kW Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"sterling.ivey@duke-energy.com","contact\_info\_visible":true,"contact\_name":"Sterling Ivey ","contact\_phone":"727-820-4722 ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-08T19:33:22Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"The USFSP research project is seeking to learn more about renewable solutions and how to store and use energy from the sun. The project comes from a $1 million grant from Duke Energy.\r\n\r\nThe 100 kW solar photovoltaic (PV) system is installed on the roof of a parking garage, underneath the canopy of solar panels there is space for parking. The 100 kW solar array is connected to a 200 kW battery system. The USFSP research project is seeking to learn more about renewable solutions and how to store and use energy from the sun. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":1000000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Duke Energy Florida","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1871,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1871/Duke\_Energy\_Florida\_Tesla.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1871/thumb\_Duke\_Energy\_Florida\_Tesla.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1871/partner\_Duke\_Energy\_Florida\_Tesla.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":27.7518284,"longitude":-82.6267345,"master\_project\_id":null,"name":"University of South Florida St. Petersburg 200 kW Project","om\_contractor":"","organization":"Duke Energy","owner\_1":"University of South Florida St. Petersburg","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.usfsp.edu/home/2015/05/22/usf-st-petersburg-duke-energy-unveil-solar-battery-project/","primary\_reference1":"http://cleantechnica.com/2015/05/29/tesla-battery-used-duke-energy-florida-university-south-florida-solar-project/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Florida","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-05T02:58:11Z","updated\_at\_by\_admin":"2015-09-15T23:48:48Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Duke Energy","utility\_type":"Investor Owned","vendor\_company":"Tesla","zip":""}},{"project":{"announcement\_on":"2022-04-16","approval\_status":1,"city":"Central Valley ","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Nikolas.noel@ge.com, nevinc@conedsolutions.com","contact\_info\_visible":true,"contact\_name":"Nikolas Noel (GE), Christine Nevin (Con Edison Development) ","contact\_phone":"+1 518-385-6090; +1 914-286-7094","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-08T19:46:12Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"GE has announced it will supply Con Edison Development (CED) with an 8 MWh battery energy storage system in Central Valley, California.\r\n\r\nThe new storage solution will utilise GE’s Mark VIe-based plant control system, Brilliance MW Inverters, and packaged lithium ion battery modules. The project marks the first occasion on which GE has introduced a lithium ion (Li-ion) battery solution which is supported by associated long-term service agreements. The system will provide 2 MW of power over a four-hour period and includes delivery of a complete energy storage system, with associated long term service agreements.\r\n\r\nWorking with CED, GE utilized advanced analytics and modeling to evaluate potential benefits of the energy storage system. The California-based installation will be CED’s first energy storage project and will serve as a learning tool for optimizing and operating energy storage facilities in the future.\r\n\r\nOperations on the site are expected to begin within the next 6 to 9 months.\r\n\r\n\r\n","developer":"Con Edison Development","electronics\_provider":"GE Energy Storage","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1872,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":40.6804279,"longitude":-122.3708419,"master\_project\_id":null,"name":"8 MWh Con Edison & GE - Central Valley, CA","om\_contractor":"GE Energy Storage","organization":null,"owner\_1":"N/A","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.businesswire.com/news/home/20150416005122/en/Con-Edison-Development-Enters-Agreement-Procure-GE#.Ve9YlRFVhBc","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-09-16T00:21:26Z","updated\_at\_by\_admin":"2015-09-16T00:05:31Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"GE Energy Storage","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Tussenhausen","commissioning\_on":"2022-09-02","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Germany","contact\_email":"jochen.buehler@rl-institut.de; Gene.hunt@younicos.com; ","contact\_info\_visible":true,"contact\_name":"Dr. Jochen Buhler; Eugene Hunt;","contact\_phone":"493053042016","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2015-09-09T19:43:35Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":"2022-06-15","desc":"In this project for the first time a large scale stationary redox-flow battery (CellCube FB200-400 DC) of the company Gildemeister energy solutions has been integrated into a German distribution grid in order to reinforce an electrical network with a high share of renewable energies. The main aim is to quantify which and in what amount network expansion measures can be avoided through the usage of battery storage systems. In addition it is examined to what extend the balancing act between economic and grid-supportive operation is manageable. The partners of the project are the Reiner Lemoine Institut gGmbH, SMA Solar Technology AG, LEW Verteilnetz GmbH and Younicios AG.","developer":"","electronics\_provider":"SMA Solar Technology AG","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Federal Ministry for Economic Affairs and Energy","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1875,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1875/1875\_SPFT\_151.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1875/thumb\_1875\_SPFT\_151.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1875/partner\_1875\_SPFT\_151.JPG"}},"integrator\_company":"Reiner Lemoine Institute gGmbH; Younicos AG","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.1005133,"longitude":10.561436,"master\_project\_id":null,"name":"SmartPowerFlow Project - Gildemeister","om\_contractor":"","organization":null,"owner\_1":"LEW distribution GmbH (LVN)","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://reiner-lemoine-institut.de/en/smart-power-flow/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"The goal of the institute is to scientifically support the long-term transition of the energy supply to 100% renewables. The institute’s basic funding is provided by Reiner Lemoin-Stiftung.","research\_institution":"Reiner Lemoine Institute gGmbH","research\_institution\_link":"http://reiner-lemoine-institut.de/en/","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Bavaria","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-31T17:25:13Z","updated\_at\_by\_admin":"2016-05-31T17:25:13Z","updated\_by":null,"updated\_by\_email":null,"utility":"LEW distribution GmbH (LVN) - Bavarian grid operator","utility\_type":"","vendor\_company":"GILDEMEISTER energy solutions GmbH","zip":""}},{"project":{"announcement\_on":"2022-05-30","approval\_status":1,"city":"Multiple","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"sunsmart@fsec.ucf.edu","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-09T20:20:21Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"The SunSmart Emergency Shelter Program has installed more than 115 solar+storage\r\nsystems in Florida schools, supplying over 1 MW of solar generation capacity and providing resilient\r\npower to emergency shelters across the state.\r\n\r\nEach solar+storage system is composed of a 10-kW SolarWorld PV array, a 25-kWh Sun-xtender lead-acid\r\nbattery pack, and a 10-kW battery-based Outback inverter. The systems have the capability to sell\r\nelectricity to the utility during normal operation and supply backup emergency electricity to power\r\ncritical loads in the designated Enhanced Hurricane Protected Area of each school. Emergency power\r\nfrom the solar+storage systems can be accessed by any emergency response organization and the\r\nschools collectively have the capacity to shelter 10,000 to 50,000 people during a disaster.","developer":"","electronics\_provider":"Outback Power","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 - RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1876,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1876/1876\_SunSmart.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1876/thumb\_1876\_SunSmart.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1876/partner\_1876\_SunSmart.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":29.2738888,"longitude":-82.1502777,"master\_project\_id":null,"name":"1 MW - SunSmart Emergency Shelters Program","om\_contractor":"","organization":"","owner\_1":"Multiple","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.cleanegroup.org/assets/2015/Energy-Storage-101.pdf","primary\_reference1":"http://www.fsec.ucf.edu/en/education/sunsmart/index.html","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Florida","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-08T00:28:45Z","updated\_at\_by\_admin":"2015-09-23T00:11:49Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Concorde Battery Corporation","zip":""}},{"project":{"announcement\_on":"2022-08-20","approval\_status":1,"city":"Pomona","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jbolkan@1105media.com","contact\_info\_visible":true,"contact\_name":"Joshua Bolkan","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-10T15:11:07Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"Engineers from the University of California Los Angeles Henry Samueli School of Engineering and Applied Science have won a $1.62 million grant to build a hybrid energy storage system.\r\n\r\nThe team with work with Southern California Edison, which will help operate the system on the Cal Poly Pomona campus upon completion, to build a system to store \"energy harvested from intermittently productive renewable sources such as solar panels and wind farms, then releases that energy into the grid when demand is high,\" according to a news release.\r\n\r\nLead by Pirouz Kavehpour, a professor of mechanical and aerospace engineering at UCLA, the team will build a system that uses both compressed air and thermal energy storage technologies to enhance capacity and reduce costs.\r\n\r\n\"Our estimated cost of energy for this unit is about $100 per kilowatt hour, which is much lower than any battery system of which we are aware,\" said Kavehpour, in a prepared statement.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":1620000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"California Energy Commission","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1877,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.055103,"longitude":-117.7499909,"master\_project\_id":null,"name":"Hybrid Compressed Air Energy Storage and Thermal Energy Storage - UCLA - Southern California Edison","om\_contractor":"","organization":"","owner\_1":"Southern California Edison","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://campustechnology.com/articles/2015/08/20/u-california-los-angeles-wins-1.62-million-to-build-energy-storage-system.aspx?utm\_source=Sailthru&utm\_medium=email&utm\_campaign=Issue:%202015-09-01%20Utility%20Dive%20Storage&utm\_term=Utility%20Dive:%20Storage","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"University of California Los Angeles Henry Samueli School of Engineering and Applied Science","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Compressed Air Storage","technology\_type\_l1":"Compressed Air Storage","technology\_type\_l2":"Compressed Air Storage","technology\_type\_l3":"Electro-mechanical","updated\_at":"2016-09-03T01:42:24Z","updated\_at\_by\_admin":"2016-09-03T01:42:24Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-08-26","approval\_status":1,"city":"Blue Lake ","commissioning\_on":"2022-10-01","companion":"500 kW solar array, biomass fuel cell, and diesel generation","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"jana.ganion@bluelakerancheria-nsn.gov; annie.seiple@siemens.com","contact\_info\_visible":false,"contact\_name":"Jana Ganion; Annie Seiple","contact\_phone":"202-316-0219","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Colburn Electric","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-10T15:51:57Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"Siemens, the Blue Lake Rancheria Native American reservation in Northern California, and Humboldt State University’s Schatz Energy Research Center will construct a microgrid on 100 acres that will power government offices, economic enterprises, and critical Red Cross safety shelter-in-place facilities.\r\n\r\nOnce complete, the microgrid will allow the reservation to island itself from local utility Pacific Gas & Electric. Siemens will be providing the Microgrid Management Software which will help control the operation of the energy system that will include a 500 kW solar array, 950 kWh battery storage, a biomass fuel cell, and diesel generation.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":5000000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"California Energy Commission - Electric Program Investment Charge (EPIC)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1878,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1878/Blue\_Lake\_Rancheria.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1878/thumb\_Blue\_Lake\_Rancheria.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1878/partner\_Blue\_Lake\_Rancheria.jpg"}},"integrator\_company":"Siemens","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":40.8829072,"longitude":-123.9839488,"master\_project\_id":null,"name":"Blue Lake Rancheria Native American Reservation Microgrid - 950 kWh","om\_contractor":"","organization":"Blue Lake Rancheria; Siemens","owner\_1":"Blue Lake Rancheria","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://siemensusa.synapticdigital.com/featured-multimedia-stories/energy-management/blue-lake-rancheria-native-american-reservation-microgrid-goes-live/s/64bc14d8-b74a-4951-8a5b-9e1f48a07f9b","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"At the Schatz Energy Research Center (SERC), we are working to establish clean and renewable energy technologies in our society.","research\_institution":"Schatz Energy Research Center of California's Humboldt State University","research\_institution\_link":"http://www.schatzlab.org/","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":950,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-18T05:49:23Z","updated\_at\_by\_admin":"2016-01-13T22:48:04Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-08-24","approval\_status":1,"city":"Sumava ","commissioning\_on":null,"companion":"11 kW solar and 5 kW wind","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"energysolutions@gildemeister.com","contact\_info\_visible":true,"contact\_name":"Lucienne Sproll","contact\_phone":"+41 (0) 58611 5442","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Czech Republic","created\_at":"2015-09-10T17:14:47Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"The energy storage project was officially opened in June 2015 to supply the first e-charging station located in the National Park Šumava with green power. The park is part of the Bohemian Forest, one of the largest connected forest areas in Central Europe. In order to supply a fleet of electric vehicles, which can be rented by visitors, a green solution was sought, that could also operate grid-independent. In this case the CellCube storage system works in combination with an 11 kWp solar system as well as with a 5 kW wind power plant. The combination of power generation from renewable energy sources with a storage system allows for 100% CO2-free charging of electric vehicles, 24 hours a day, seven days a week.","developer":"B64 s.r.o.","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":null,"hidden":false,"id":1879,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1879/1879\_-\_National\_Park\_Sumava.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1879/thumb\_1879\_-\_National\_Park\_Sumava.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1879/partner\_1879\_-\_National\_Park\_Sumava.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":null,"longitude":null,"master\_project\_id":null,"name":"Sumava National Park CellCube","om\_contractor":"","organization":null,"owner\_1":"National Park Sumava","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.altenergymag.com/news/2015/08/24/first-cellcube-vanadium-redox-flow-storage-systems-installed-in-czech-republic/21098/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Bohemian Forest","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-27T21:03:36Z","updated\_at\_by\_admin":"2015-09-28T21:19:50Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"GILDEMEISTER energy storage GmbH","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Berkshire","commissioning\_on":"2022-06-23","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@anesco.co.uk","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2015-09-10T22:23:10Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"UK energy efficiency solutions company, Anesco, has installed a second 250 kWh commercial-scale unit. The battery storage unit has been connected to an existing solar array in Berkshire. It follows the installation by Anesco of a 250kWh unit in Dorset, in September 2014, which was the first unit of its kind to be installed in the UK.","developer":"","electronics\_provider":"BYD Company Ltd","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1881,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1881/Anesco\_2nd\_Install\_250kWh.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1881/thumb\_Anesco\_2nd\_Install\_250kWh.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1881/partner\_Anesco\_2nd\_Install\_250kWh.jpg"}},"integrator\_company":"Anesco Ltd.","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.4669939,"longitude":-1.1853677,"master\_project\_id":null,"name":"250 kWh Berkshire Farm (Anesco UK)","om\_contractor":"","organization":"Anesco","owner\_1":"NMI","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://anesco.co.uk/anesco-expands-battery-storage-portfolio-with-installation-of-second-commercial-scale-unit/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"England","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-02T04:39:17Z","updated\_at\_by\_admin":"2015-09-30T00:09:39Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"BYD Company Ltd","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Ashland","commissioning\_on":"2022-04-22","companion":"","construction\_on":null,"contact\_city":"Chicago","contact\_country":"United States","contact\_email":"mike.grunow@viznenergy.com","contact\_info\_visible":true,"contact\_name":"Mike Grunow","contact\_phone":"","contact\_state":"Illinois","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-10T22:59:52Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Dominion Virginia Power installed more than 265 solar panels on the rooftop of R-MC's Copley Science Center, making this project the state’s first fully integrated solar and battery storage site of its kind, which will help provide a steady delivery of electricity even when the sun is not shining. The project, under Dominion Virginia Power’s Solar Partnership Program, will test two unique battery technologies, along with the roof-mounted solar system, to determine its effects on the distribution system.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1882,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1882/Randolph-Macon\_Dominion.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1882/thumb\_Randolph-Macon\_Dominion.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1882/partner\_Randolph-Macon\_Dominion.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":37.7610911,"longitude":-77.4744794,"master\_project\_id":null,"name":"Randolph-Macon College - Dominion Virginia Power","om\_contractor":"","organization":null,"owner\_1":"Dominion Virginia Power","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://cleantechnica.com/2015/04/27/vizn-flow-battery-system-installed-randolph-college/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":48,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Virginia","status":"Operational","street\_address":"304 Caroline Street","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Iron Flow Battery","technology\_type\_l1":"Flow Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-22T16:35:25Z","updated\_at\_by\_admin":"2016-04-22T16:35:25Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"ViZn Energy","zip":"23005"}},{"project":{"announcement\_on":"2022-08-17","approval\_status":1,"city":"Glasgow","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@sunverge.com; press@sunverge.com","contact\_info\_visible":true,"contact\_name":"","contact\_phone":"1 415 795 3660","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-14T15:09:04Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"The Glasgow Electric Plant Board (EPB) in Kentucky is installing Sunverge‘s energy storage devices for use during times of peak demand.\r\n\r\nThe municipally-owned utility, which serves a town of 14,000, will install the 6 kW / 11.6 kWh Sunverge system in 165 homes, providing utility-grade storage at individual homes along with cloud software to manage the storage. The devices will capture power from the electric grid at night or when demand and cost are lower. When demand peaks and costs are higher, the utility will order the batteries to release that power and distribute it, reducing the need to supply additional power from traditional generating plants.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1883,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1883/Sunverge\_Kentucky\_Electric\_Bill\_Management.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1883/thumb\_Sunverge\_Kentucky\_Electric\_Bill\_Management.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1883/partner\_Sunverge\_Kentucky\_Electric\_Bill\_Management.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.9958839,"longitude":-85.9119215,"master\_project\_id":null,"name":"Glasgow Electric Plant Board - Sunverge 165 Home Pilot","om\_contractor":"","organization":null,"owner\_1":"Glasgow Electric Plant Board (EPB)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.energymanagertoday.com/small-utility-deploys-energy-storage-customers-homes-0114674/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Residential (Reliability)","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":990,"size\_kwh":1.91666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":55.0,"state":"Kentucky","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-21T00:17:15Z","updated\_at\_by\_admin":"2015-10-21T00:17:15Z","updated\_by":null,"updated\_by\_email":null,"utility":"Glasgow Electric Plant Board (EPB)","utility\_type":"State/Municipal Owned","vendor\_company":"Sunverge Energy","zip":""}},{"project":{"announcement\_on":"2022-09-14","approval\_status":1,"city":"Houghton","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Yardley","contact\_country":"United States","contact\_email":"walt.novash@jci.com","contact\_info\_visible":true,"contact\_name":"Walt Novash","contact\_phone":"(608) 215-8567","contact\_state":"PA","contact\_street\_address":"1218 Yardley Morrisville Rd","contact\_zip":"19067","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-14T16:22:45Z","created\_by\_id":165,"debt\_investor":"","decommissioning\_on":null,"desc":"Johnson Controls and Princeton Power Systems created and commissioned two separate microgrid systems on opposite ends of the island – the ‘Rock Harbor Site’ and ‘Windigo Site’ for the JCI Isle Royale Project. Prior to the project, each island currently was powered by generators only. Each system includes PV arrays, batteries, generators, and two Princeton Power Systems inverters -- there are four inverters total. One inverter will connect to the PV array and one will connect to the battery bank. A site controller will manage the microgrid, performing monitoring and control tasks. \r\nThe overall goal of the new system is to minimize the use of the generators, providing power to the grid using mostly PV and battery and using the generators only to charge the batteries and at times when PV and battery cannot meet the load on the system.","developer":"Johnson Controls, Inc.","electronics\_provider":"SolarWorld, GNB Absolute, Caterpillar","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1888,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1888/IMG\_4806.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1888/thumb\_IMG\_4806.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1888/partner\_IMG\_4806.JPG"}},"integrator\_company":"Princeton Power Systems","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.1211331,"longitude":-88.5694182,"master\_project\_id":null,"name":"National Park Service Isle Royale - Johnson Controls, Inc.","om\_contractor":"","organization":"Johnson Controls, Inc.","owner\_1":"National Park Service","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.nps.gov/isro/index.htm","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Michigan","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-26T03:11:00Z","updated\_at\_by\_admin":"2015-09-14T21:18:14Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"Federally Owned","vendor\_company":"Princeton Power Systems","zip":"49931"}},{"project":{"announcement\_on":"2022-09-09","approval\_status":1,"city":"Borkum","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"hurst@steinbeis-europa.de","contact\_info\_visible":true,"contact\_name":"Annette Hurst","contact\_phone":"+49 (0)721 935 19126","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2015-09-21T18:45:15Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"Netfficient will demonstrate feasibility of local small scale storage technologies covering low voltage and medium voltage scenarios and a wide range of applications and functionalities. \r\nThe following storage technologies will be integrated:\r\n\r\n Super Capacitors\r\n Li-ion batteries\r\n Second Life Electric Vehicle Batteries\r\n and Home Hybrid technologies as a combination of the above\r\n","developer":"","electronics\_provider":"Win Inertia","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"European Union's Horizon 2020 (grant agreement No 646463)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1894,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1894/Borkum\_Island.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1894/thumb\_Borkum\_Island.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1894/partner\_Borkum\_Island.jpg"}},"integrator\_company":"Ayesa Advanced Technologies S.A.","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":53.5854873,"longitude":6.6725308,"master\_project\_id":null,"name":"Borkum Island - Smart Grid Project - Netfficient","om\_contractor":"","organization":null,"owner\_1":"NETfficient","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://netfficient-project.eu/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Lower Saxony","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-20T16:41:16Z","updated\_at\_by\_admin":"2016-04-20T16:41:16Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-09-10","approval\_status":1,"city":"Kaua'i","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"press@solarcity.com","contact\_info\_visible":true,"contact\_name":"Molly Canales","contact\_phone":"(650) 963-5674","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-22T15:33:30Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"Kauaʻi Island Utility Cooperative (KIUC) has signed a power purchase agreement (PPA) with SolarCity for electricity from the first utility-scale solar array and battery storage system (13 MW / 52 MWh) designed to supply power to the grid in the evening, when demand is highest. The proposed SolarCity project next to KIUC’s Kapaia power plant is believed to be the first utility-scale system in the U.S. to provide dispatchable solar energy, meaning that the utility can count on electricity being available when it’s needed, even hours after the sun goes down.\r\n\r\nThe 52 MWh battery system will feed up to 13 megawatts of electricity onto the grid to “shave” the amount of conventional power generation needed to meet the evening peak, which lasts from 5 p.m. to 10 p.m. By using the solar energy stored in the battery instead of diesel generators, KIUC will reduce its use of imported fossil fuels and also cut its greenhouse gas emissions.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1895,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1895/1895\_-\_Kauai\_52MWh.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1895/thumb\_1895\_-\_Kauai\_52MWh.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1895/partner\_1895\_-\_Kauai\_52MWh.jpg"}},"integrator\_company":"SolarCity","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":21.9661076,"longitude":-159.5737912,"master\_project\_id":null,"name":"Kaua'i Dispatchable Solar Storage - 13 MW / 52MWh - SolarCity","om\_contractor":"","organization":null,"owner\_1":"SolarCity","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"20-year power purchase agreement where KIUC will pay SolarCity $0.145/kWh","primary\_reference":"http://www.solarcity.com/newsroom/press/kaua%CA%BBi-utility-signs-deal-solarcity-first-dispatchable-solar-storage-system","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":13000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Hawaii","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-22T18:04:02Z","updated\_at\_by\_admin":"2016-03-22T18:04:02Z","updated\_by":null,"updated\_by\_email":null,"utility":"Kauai Island Utility Cooperative","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Tesla","zip":""}},{"project":{"announcement\_on":"2022-05-01","approval\_status":1,"city":"Astana","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@primuspower.com","contact\_info\_visible":true,"contact\_name":"Jane Evans-Ryan","contact\_phone":"+1-408-489-6391","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Kazakhstan","created\_at":"2015-09-22T16:23:41Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"In May 2015 Primus executed a strategic agreement with Samruk-Energy, the principal electricity provider in the Republic of Kazakhstan. As part of the multi-year agreement, Samruk-Energy plans to purchase Primus systems totaling 25 MW · 100 MWh -- representing 1,250 batteries. These Primus systems will be assembled inside Kazakhstan and help the country reach its renewable energy goals of 30 percent by 2030 and 50 percent by 2050.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Equity","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"I2BF Global Ventures ","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1896,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/1896/Primus\_Power.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/1896/thumb\_Primus\_Power.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/1896/partner\_Primus\_Power.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.1605227,"longitude":71.4703558,"master\_project\_id":null,"name":"Kazakhstan - 25MW / 100MWh - Flow Batteries - Primus Power","om\_contractor":"","organization":null,"owner\_1":"Samruk Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.greentechmedia.com/articles/read/primus-power-raises-25m-to-bring-flow-batteries-to-kazakhstan","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":25000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Astana","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-27T20:47:49Z","updated\_at\_by\_admin":"2015-09-30T22:40:00Z","updated\_by":null,"updated\_by\_email":null,"utility":"Samruk Energy","utility\_type":"Federally Owned","vendor\_company":"Primus Power","zip":""}},{"project":{"announcement\_on":"2022-09-11","approval\_status":1,"city":"Martinsdale","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Bozeman","contact\_country":"United States","contact\_email":"contact@gordonbuttepumpedstorage.com","contact\_info\_visible":true,"contact\_name":"","contact\_phone":"406-585-3006","contact\_state":"MT","contact\_street\_address":"209 South Willson Ave.","contact\_zip":"59771","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-22T16:43:53Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"The Gordon Butte Pumped Storage Hydro Project will be located on private land in Meagher County, Montana, three miles west of the small town of Martinsdale. Our project is designed to take advantage of the unique geological features of Gordon Butte to create a new closed-loop pumped storage hydro facility. This facility will provide ancillary and balancing capabilities to Montana’s emerging renewable energy industry, as well as, provide multiple services to facilitate stability, reliability, growth and longevity to existing energy infrastructure and resources in the state and region.\r\n\r\nThese generators will provide an installed capacity of 400 megawatts, allowing for an estimated annual energy generation of 1300 gigawatt hours.\r\n","developer":"Absaroka Energy LLC","electronics\_provider":"Alstom","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1897,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1897/Gordon\_Butte\_\_Montana\_Pumped\_Hydro\_GB\_Energy\_Park\_LLC.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1897/thumb\_Gordon\_Butte\_\_Montana\_Pumped\_Hydro\_GB\_Energy\_Park\_LLC.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1897/partner\_Gordon\_Butte\_\_Montana\_Pumped\_Hydro\_GB\_Energy\_Park\_LLC.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.457695,"longitude":-110.3140327,"master\_project\_id":null,"name":"400 MW Gordon Butte Pumped Hydro","om\_contractor":"","organization":null,"owner\_1":"GB Energy Park LLC - Absaroka Energy LLC","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.gordonbuttepumpedstorage.com/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transmission Congestion Relief","service\_use\_case\_3":"Transmission Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":400000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Montana","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Closed-loop Pumped Hydro Storage","technology\_type\_l1":"Closed-loop Pumped Hydro Storage","technology\_type\_l2":"Closed-loop Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2015-09-30T23:30:43Z","updated\_at\_by\_admin":"2015-09-30T23:30:00Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Alstom","zip":""}},{"project":{"announcement\_on":"2022-06-23","approval\_status":2,"city":"Madison ","commissioning\_on":"2022-01-22","companion":"","construction\_on":"2022-08-29","contact\_city":"","contact\_country":"United States","contact\_email":"richardzimmerman@alliantenergy.com","contact\_info\_visible":false,"contact\_name":"Richard Zimmerman","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":5000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-22T17:22:35Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"Researching the latest solar technologies and how effectively they operate in Wisconsin’s climate will be the primary focus of a large demonstration project Alliant Energy announced today. The company has plans to install more than three dozen unique renewable energy features over the next few years as part of a solar lab on the grounds of its headquarters in Madison, WI. \r\n\r\nPhase one of the project includes several ground-level and building-mounted solar panels, solar parking canopies covering nearly 50 parking spaces, 13 electric vehicle charging stations, solar café tables and a battery energy storage system.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1898,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1898/Alliant\_Energy.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1898/thumb\_Alliant\_Energy.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1898/partner\_Alliant\_Energy.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":43.1507526,"longitude":-89.2957893,"master\_project\_id":"","name":"Alliant Energy - Solar Demonstration Project","om\_contractor":"","organization":null,"owner\_1":"Alliant Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.alliantenergy.com/AboutAlliantEnergy/Newsroom/NewsReleases/178405","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"The Electric Power Research Institute, Inc. conducts research, development and demonstration (RD&D) relating to the generation, delivery and use of electricity for the benefit of the public.","research\_institution":"Electric Power Research Institute (EPRI)","research\_institution\_link":"http://www.epri.com/","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":30,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Wisconsin","status":"Operational","street\_address":"4902 North Biltmore Lane","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-01-19T22:42:24Z","updated\_at\_by\_admin":"2016-01-19T22:42:24Z","updated\_by":null,"updated\_by\_email":null,"utility":"Alliant Energy","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-09-14","approval\_status":1,"city":"New York","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ir@electrovaya.com","contact\_info\_visible":true,"contact\_name":"","contact\_phone":"905.855.4618","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-22T19:41:39Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"Electrovaya Inc. announced that it has kicked off a project to design and build an advanced\r\nTransportable Energy Storage System (TESS), an innovative adoption of Electrovaya's standard\r\nstationary energy storage system. The system will be designed to meet Con Edison's requirements and\r\nultimately be utilized for grid support and as an alternative to the standard mobile diesel systems. TESS\r\nwill operate using advanced lithium ion batteries.\r\n\r\nThe system will store up to 500 kilowatts of electricity, and provide up to 800 kilowatt-hours of energy to\r\nthe grid for the purposes of increased grid efficiency and resiliency during outages.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"New York State Energy Research and Development Authority’s (NYSERDA) Smart Grid Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1899,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.7127837,"longitude":-74.0059413,"master\_project\_id":null,"name":"500 kW / 800 kWh - Electrovaya Transportable Energy Storage","om\_contractor":"","organization":null,"owner\_1":"Con Edison","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.electrovaya.com/pdf/PR/2015/PR20150914.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":1.6,"size\_kwh\_hours":1,"size\_kwh\_minutes":36.0,"state":"New York","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-01T00:11:14Z","updated\_at\_by\_admin":"2015-10-01T00:10:51Z","updated\_by":null,"updated\_by\_email":null,"utility":"Consolidated Edison Company of New York (Con Edison)","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-09-11","approval\_status":1,"city":"Red Hook, Brooklyn","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"districtmanager@brooklyncb6.org","contact\_info\_visible":true,"contact\_name":"Craig Hammerman","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-22T20:23:46Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"The Red Hook neighborhood of Brooklyn was severely impacted by Hurricanes Sandy and Irene with power outages lasting for weeks. The proposed microgrid would integrate a variety of both commercial and residential distributed generation sources, including solar power. \r\n\r\n\r\nRecipients of power would include Good Shepherd Services Miccio Cornerstone Community Center, Red Hook Initiative, Visitation Church, Ikea, Addabbo Family Health Center, Red Hook Public Library, South Brooklyn Community High School, as well as low income community residents and other facilities.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":100000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"NY Prize - Feasibility Grant","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1901,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.6772802,"longitude":-74.0094471,"master\_project\_id":null,"name":"Red Hook (Brooklyn, NY) - NY Prize Microgrid","om\_contractor":"","organization":null,"owner\_1":"Consolidated Edison","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.utilitydive.com/news/brooklyn-microgrid-could-supply-residents-with-up-to-10-mw/405460/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"New York","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-20T18:55:12Z","updated\_at\_by\_admin":"2015-10-20T18:55:12Z","updated\_by":null,"updated\_by\_email":null,"utility":"Consolidated Edison Company of New York (Con Edison)","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-05-01","approval\_status":2,"city":"Molokai","commissioning\_on":null,"companion":"6 MW PV","construction\_on":null,"contact\_city":"Sausalito","contact\_country":"United States","contact\_email":"ataber@princetonenergy.net","contact\_info\_visible":true,"contact\_name":"Andrea Taber","contact\_phone":"415-598-8495","contact\_state":"California","contact\_street\_address":"","contact\_zip":"94965","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-24T00:35:52Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Ikehu Molokai phase one involves a major solar energy farm paired with a battery storage system near Maui Electric Co.’s existing power plant.","developer":"Princeton Energy Group","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1903,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":21.1443935,"longitude":-157.0226297,"master\_project\_id":null,"name":"6 MW / 10 MWh Molokai Island Energy - Phase One","om\_contractor":"","organization":null,"owner\_1":"Private Investor Group","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.bizjournals.com/pacific/news/2015/05/19/princeton-energy-group-plan-to-help-make-molokai.html","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":6000,"size\_kwh":1.66666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":40.0,"state":"Hawaii","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-01-25T21:18:43Z","updated\_at\_by\_admin":"2016-01-25T21:18:43Z","updated\_by":null,"updated\_by\_email":null,"utility":"Maui Electric Company (MECO)","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-09-15","approval\_status":1,"city":"Honolulu","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"doe\_info@hawaiidoe.org","contact\_info\_visible":false,"contact\_name":"Jake Bartell","contact\_phone":"808-586-3230","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-24T00:51:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Development of microgrid comprising 2 MW energy storage with PV at Kaimuki Middle School, Honolulu, to make the school net zero; provide resilient power to the school, an emergency shelter; demonstrate the first microgrid in the state; allow testing of microgrid for grid support services; demonstrate alternative utility business model in HIPilot microgrid project at Kaimuki Middle School is being developed in partnership with HECO, DBEDT, and other federal agencies. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1904,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1904/Kaimuki\_Middle\_School.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1904/thumb\_Kaimuki\_Middle\_School.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1904/partner\_Kaimuki\_Middle\_School.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":21.2691946,"longitude":-157.7956942,"master\_project\_id":null,"name":"Kaimuki Middle School Microgrid Project","om\_contractor":"","organization":"","owner\_1":"N/A","owner\_2":"","owner\_type":"3","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.sandia.gov/ess/docs/pr\_conferences/2015/PR%204/6-%20Olinsky.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2800,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Hawaii","status":"Operational","street\_address":"631 18th Ave","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T17:50:07Z","updated\_at\_by\_admin":"2015-10-20T23:09:10Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Hawaiian Electric Company","utility\_type":"Investor Owned","vendor\_company":"","zip":"96816"}},{"project":{"announcement\_on":"2022-10-02","approval\_status":1,"city":"Austin","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ccalnan@bizjournals.com; info@1EnergySystems.com; info@powerfinpartners.com","contact\_info\_visible":true,"contact\_name":"Christopher Calnan","contact\_phone":"512.494.2524","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":3000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-24T14:40:14Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"This project includes 3.2 MW of solar power with 1.5 MW of battery storage to be provided by Tesla. The system is to be installed next to the Kingsbury Substation as part of Austin Energy's community solar project. The 1.5 MW of storage will be used to help integrate the renewable power onto the grid.","developer":"1Energy Systems, Inc.","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":1000000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Texas Commission on Environmental Quality","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1905,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":30.267153,"longitude":-97.7430608,"master\_project\_id":null,"name":"1.5 MW - Austin Energy Kingsbury Substation","om\_contractor":"","organization":null,"owner\_1":"PowerFin Texas Solar Projects LLC.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"25-year PPA with Austin Energy - expected long-term fixed price of $80 to $95/MWh ($0.08 to $0.095/kWh)","primary\_reference":"https://austinenergy.com/wps/portal/ae/about/news/press-releases/2015/austin-energy-battery-storage-project-tied-to-community-solar-moves-forward/!ut/p/a1/jZFBT8JAEIV\_iweO210WUfRWqqmItfEgrr2YBYbtmna3mZ3S4K-3xIsaUOY2yffmZd7jBVe8cHprjSbrna72e3HxJuRE3iVCztJLORFxmkzn48Xj8CqTPfD6Hchv8xsxW-SLOJ8nIk1GJ-qPTCz-09-fYCAxSzLDi0ZTyazbeK4ahBAYQgU6QOBKiuGYK90Gso6BAzQ7ttREgDsWyKM2wBr077AiRhbWjDxb-bpunaWe8JVGVvstBLbx2Glc731jtxxNel-EDSBg1GIfaEnUhOuBGIiu6yLjvakg6k8NxCFJ6QNx9ZPkL7z46-sncf4bOFDLF3A896Z-Vh8P0\_FyNxJ2Fp99AgQML24!/dl5/d5/L2dBISEvZ0FBIS9nQSEh/","primary\_reference1":null,"projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1500,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-21T00:11:46Z","updated\_at\_by\_admin":"2015-10-21T00:11:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"Austin Energy","utility\_type":"Public Owned","vendor\_company":"Tesla Motors Inc.","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Mountain View","commissioning\_on":"2022-08-14","companion":"","construction\_on":"2022-06-01","contact\_city":"Santa Clara","contact\_country":"United States","contact\_email":"asmith@greencharge.net","contact\_info\_visible":true,"contact\_name":"Anne Smith","contact\_phone":"408-313-8089","contact\_state":"CA","contact\_street\_address":"4151 Burton Drive","contact\_zip":"95054","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-24T17:11:10Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks has installed intelligent energy storage and electric vehicle charging stations at Mountain View Los Altos High School District in California. The equipment and installation was financed by Green Charge and provided without cost to the district. Intelligent energy storage uses lithium-ion batteries and sophisticated software to help the school district reduce their peak demand charges, which can account for up to 50 percent of their electricity bill.","developer":"ENGIE Storage (formerly Green Charge Networks)","electronics\_provider":"ENGIE Storage (formerly Green Charge Networks)","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1906,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1906/MVLA\_High\_School.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1906/thumb\_MVLA\_High\_School.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1906/partner\_MVLA\_High\_School.jpg"}},"integrator\_company":"ENGIE Storage (formerly Green Charge Networks)","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":37.3600254,"longitude":-122.0683198,"master\_project\_id":null,"name":"MVLA High School District Mountain View HS - ENGIE Storage (formerly Green Charge Networks)","om\_contractor":"","organization":"ENGIE Storage (formerly Green Charge Networks)","owner\_1":"ENGIE Storage (formerly Green Charge Networks)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://greencharge.net/californias-mountain-view-los-altos-high-school-district-becomes-the-first-us-high-school-district-to-combine-intelligent-energy-storage-and-ev-charging/","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":200,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"3535 Truman Ave","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-05T03:36:49Z","updated\_at\_by\_admin":"2015-09-24T18:14:24Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"ENGIE Storage (formerly Green Charge Networks)","zip":"94040"}},{"project":{"announcement\_on":"2022-09-15","approval\_status":1,"city":"Minster","commissioning\_on":"2022-05-06","companion":"4.3 MW Solar Farm","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"United States","contact\_email":"spencer.zirkelbach@sandc.com; info@hm-ventures.com","contact\_info\_visible":false,"contact\_name":"Spencer Zirkelbach","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"S&C Electric Company","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-24T19:43:25Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"The project located in Minster, Ohio was built in conjunction with the local municipal utility, the Village of Minster. This project is the largest U.S. facility of its kind connected through a municipal utility. The construction of the energy storage facility started in October last year. The project consists of a 4.3 MW solar plant and a 7 MW PureWave system installed in Minster which provides fully integrated storage management and power conversion for 3-MWh of lithium ion-batteries.\r\n\r\nHalf Moon Ventures (HMV) and the Village of Minster benefit from four unique revenue streams, which will offset the costs of grid improvements while improving the rate of return. HMV will be able to sell into PJM’s frequency regulation market, which helps to provide grid reliability for more than 60 million customers. The Village of Minster will use the energy storage system to defer T&D costs, improve power quality and shave peak demand.","developer":"Half Moon Ventures (HMV)","electronics\_provider":"S&C Electric Company","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1908,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1908/minster-oh.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1908/thumb\_minster-oh.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1908/partner\_minster-oh.jpg"}},"integrator\_company":"S&C Electric Company","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.3986964,"longitude":-84.3860585,"master\_project\_id":null,"name":"Village of Minster - S&C Electric Company","om\_contractor":"","organization":"","owner\_1":"Half Moon Ventures (HMV)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The Village of Minster will be able to defer $350,000 of T&D costs, improve power quality and shave peak demand.","primary\_reference":"http://www.sandc.com/globalassets/sac-electric/documents/sharepoint/documents---all-documents/case-study-657-1000.pdf","primary\_reference1":"https://www.pv-magazine.com/2016/05/09/sc-completes-7-mw-solar-energy-storage-in-ohio\_100024475/#axzz48BHSqk1s","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":7000,"size\_kwh":0.416666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":25.0,"state":"Ohio","status":"Operational","street\_address":"247 N. Ohio St","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-28T00:21:26Z","updated\_at\_by\_admin":"2016-08-10T21:05:34Z","updated\_by":null,"updated\_by\_email":null,"utility":"Village of Minster (Ohio)","utility\_type":"State/Municipal Owned","vendor\_company":"LG Chem","zip":"45865"}},{"project":{"announcement\_on":"2022-07-08","approval\_status":1,"city":"East Hampton","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"lcantwell@ehamptonny.gov; info@clean-coalition.org","contact\_info\_visible":true,"contact\_name":"Larry Cantwell; Clean Coalition","contact\_phone":"Clean Coalition: 650-308-9046","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-24T20:21:12Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"Planned for the East Hampton area, the Long Island Community Microgrid Project aims to achieve nearly 50% of its grid-area electric power requirements from local solar and sets the stage to avoid hundreds of millions of dollars in transmission investments that otherwise would be required to deliver power to the region.\r\n\r\nThe result will be an optimized local energy system combining up to 15 megawatts of solar power with a 25-megawatt-hour energy storage system. The renewables-based solution will also provide backup power to critical loads, including two Suffolk County Water Authority water pumping and filtration plants and the Springs Fire District facility, during outages.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":100000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"NY Prize - Feasibility Grant","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1909,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1909/Long\_Island.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1909/thumb\_Long\_Island.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1909/partner\_Long\_Island.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.9634335,"longitude":-72.1848009,"master\_project\_id":null,"name":"Long Island Community Microgrid Project - 5 MW / 25 MWh","om\_contractor":"","organization":null,"owner\_1":"Public Service Enterprise Group of Long Island (PSEGLI)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.huffingtonpost.com/craig-lewis/on-long-island-a-smarter-more-resilient-power-system\_b\_8112300.html?utm\_hp\_ref=green&ir=Green&utm\_source=Sailthru&utm\_medium=email&utm\_campaign=Issue:%202015-09-15%20Utility%20Dive%20Storage&utm\_term=Utility%20Dive:%20Storagehttp://","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Residential (Reliability)","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":5000,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"New York","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-23T17:36:26Z","updated\_at\_by\_admin":"2015-10-23T17:35:17Z","updated\_by":null,"updated\_by\_email":null,"utility":"Public Service Enterprise Group of Long Island (PSEGLI)","utility\_type":"Investor Owned","vendor\_company":"","zip":"11937"}},{"project":{"announcement\_on":"2022-09-01","approval\_status":1,"city":"Marsabit","commissioning\_on":null,"companion":"2 Wind Turbines","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@socabelec.co.ke","contact\_info\_visible":true,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Kenya","created\_at":"2015-09-24T21:14:35Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"Kenya will soon be getting its first flywheel storage project. The system, commissioned by Socabelec East Africa, is intended to support a microgrid serving a community of 5,000 people in Marsabit, the capital of the Kenyan county of the same name.\r\n\r\nCurrently, the electricity supply for the village comes from diesel generators and two 275-kilowatt wind turbines. ABB’s 500-kilowatt PowerStore stabilization system will be integrated into the grid and function with the existing diesel power station controls. The company says its system will stabilize the grid, enable any excess wind energy generated to be used, and allow for the addition of further renewable energy sources.","developer":"","electronics\_provider":"ABB","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1910,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1910/1910\_-\_Marsabit\_Flywheel.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1910/thumb\_1910\_-\_Marsabit\_Flywheel.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1910/partner\_1910\_-\_Marsabit\_Flywheel.jpg"}},"integrator\_company":"Socabelec East Africa Ltd.","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":2.3354966,"longitude":37.9943453,"master\_project\_id":null,"name":"Marsabit, Kenya 500 kW Flywheel - ABB","om\_contractor":"","organization":null,"owner\_1":"Confidential","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.greentechmedia.com/articles/read/kenya-on-the-energy-storage-map","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Marsabit","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2015-09-29T22:20:04Z","updated\_at\_by\_admin":"2015-09-29T22:18:32Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"ABB","zip":""}},{"project":{"announcement\_on":"2022-09-24","approval\_status":1,"city":"Kwigililngok","commissioning\_on":null,"companion":"5 95 kW Wind Turbines and Diesel","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"dennis@iesconnect.net ","contact\_info\_visible":true,"contact\_name":"Dennis Meiners","contact\_phone":"907-770-6367","contact\_state":"AK","contact\_street\_address":"","contact\_zip":"","contractor\_1":"IES (Intelligent Energy Systems)","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1055750.0,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-24T23:39:22Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Intelligent Energy Systems will demonstrate the use of smart inverters and high performance vehicle-format lithium ion batteries to provide short term energy storage in the Kwigillingok High Penetration Wind System.\r\n\r\nSimilar to the villages of Kongiganak and Tuntutuliak, Kwigillingok is remote, roadless, and very windy. Also very similar is the fact that IES installed a high-tech, holistic system of wind turbines, Electric Thermal Storage (ETS) stoves, a load regulator, and a SCADA system to control it all. What makes Kwigillingok even more advanced is a Battery Energy Storage System (BESS). Utilizing the newest lithium-ion batteries from the auto industry, IES has provided the means to run the entire village from wind power. This means that, with wind, the lights are on, but the diesel generators are OFF. For at least 33% of the year: No noise, no pollution, no fuel cost, no maintenance. Now that this system is finished, expected fuel cost savings are 50% or better.","developer":"Chaninik Wind Group","electronics\_provider":"ABB Distributed Energy Storage (DES)","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Alaska Energy Authority Emerging Energy Technology Fund","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1911,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1911/IMG\_085bess-summer-crop--300x147.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1911/thumb\_IMG\_085bess-summer-crop--300x147.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1911/partner\_IMG\_085bess-summer-crop--300x147.jpg"}},"integrator\_company":"IES (Intelligent Energy Systems)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":59.8723383,"longitude":-163.1658296,"master\_project\_id":null,"name":"Kwigillingok Wind-Diesel Battery Hybrid - Chaninik Wind Group","om\_contractor":"","organization":"IES (Intelligent Energy Systems)","owner\_1":"Kwigillingok Power Company","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.iesconnect.net/projects/kwigillingok-battery-energy-storage-system/","primary\_reference1":"http://www.alaskajournal.com/business-and-finance/2014-06-05/wind-power-storage-generating-heat-displacing-diesel","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Ramping ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Alaska","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-02T06:30:03Z","updated\_at\_by\_admin":"2016-05-20T00:03:47Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Samsung Bosch","zip":""}},{"project":{"announcement\_on":"2022-09-16","approval\_status":1,"city":"Fontana","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"pmorris@sunedison.com","contact\_info\_visible":true,"contact\_name":"R. Phelps Morris","contact\_phone":"+1 (314) 770-7325","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-28T19:32:52Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"SunEdison, Inc. announced that it is supplying advanced battery systems in a project to build 9 net-zero energy homes in Fontana, Calif. The project is led by the Electric Power Research Institute (EPRI), with the support of the California Public Utilities Commission, and lead project partners major national homebuilder Meritage Homes and local utility Southern California Edison.\r\n\r\nThe research institute is leading the project to evaluate how net-zero energy homes that generate and store their own energy impact the local electricity grid. This project is important for future grid planning because under the California Public Utilities Commission's Energy Efficiency Strategic Plan, California aims to have all new homes be net-zero starting in 2020, and all new commercial buildings by 2030.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional RD&D","funding\_source\_2":"Private/Third Party RD&D","funding\_source\_3":"State/Provincial/Regional RD&D","funding\_source\_details\_1":"California Public Utilities Commission","funding\_source\_details\_2":"Meritage Homes","funding\_source\_details\_3":"Southern California Edison","gmaps":true,"hidden":false,"id":1912,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"SunEdison","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.06,"longitude":-117.44,"master\_project\_id":null,"name":"EPRI / SunEdison Net-Zero Home Pilot","om\_contractor":"","organization":null,"owner\_1":"Private Owners","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.prnewswire.com/news-releases/sunedison-supplies-battery-storage-in-net-zero-energy-home-pilot-project-in-fontana-calif-300143913.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"The Electric Power Research Institute, Inc. conducts research, development and demonstration (RD&D) relating to the generation, delivery and use of electricity for the benefit of the public.","research\_institution":"Electric Power Research Institute (EPRI)","research\_institution\_link":"http://www.epri.com/","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Residential (Reliability)","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-23T17:59:50Z","updated\_at\_by\_admin":"2015-10-23T17:59:50Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"LG Chem, GELI, Eguana Tech","zip":"92331"}},{"project":{"announcement\_on":"2021-12-08","approval\_status":1,"city":"Cedartown","commissioning\_on":"2022-09-17","companion":"1 MW Solar (PV) Farm","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"dpacini@millerschingroup.com; ahaas@epri.com","contact\_info\_visible":true,"contact\_name":"Dick Pacini (LG Chem Media Contact); Annie Haas (EPRI Communications Manager) ","contact\_phone":"Dick - 248-276-1970; Annie - 704-595-2980","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-28T20:00:01Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"Located in Cedartown, Georgia, the new research project will test and evaluate a 1 MW /2 MWh battery energy storage system (BESS) using lithium-ion battery technology – similar to the battery chemistry in electric vehicles and many of today’s consumer electronics.\r\n\r\n(http://www.southerncompany.com/news/2015-09-17-so-cedartown.cshtml)","developer":"","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1913,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1913/cedartown-battery.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1913/thumb\_cedartown-battery.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1913/partner\_cedartown-battery.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.0398054,"longitude":-85.2227836,"master\_project\_id":null,"name":"1 MW / 2 MWh - EPRI + Southern Company Pilot BESS - Cedartown, Georgia","om\_contractor":"","organization":"","owner\_1":"Southern Company / Georgia Power","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.businesswire.com/news/home/20150917005768/en/LG-Chem-Powers-Energy-Storage-System-Solar#.VgmXwstVhBd","primary\_reference1":"http://eprijournal.com/sun-and-batteries-in-cedartown/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"The Electric Power Research Institute, Inc. conducts research, development and demonstration (RD&D) relating to the generation, delivery and use of electricity for the benefit of the public.","research\_institution":"Electric Power Research Institute (EPRI)","research\_institution\_link":"http://www.epri.com/","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Georgia","status":"Operational","street\_address":"151 N. Park Blvd.","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-07T23:56:02Z","updated\_at\_by\_admin":"2015-11-19T21:24:05Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Georgia Power","utility\_type":"Investor Owned","vendor\_company":"LG Chem","zip":"30125"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"San Jose","commissioning\_on":"2022-07-10","companion":"Rooftop PV","construction\_on":"2022-07-10","contact\_city":"Milpitas","contact\_country":"United States","contact\_email":"nmaguire@juiceboxsolar.com","contact\_info\_visible":true,"contact\_name":"Neil Maguire","contact\_phone":"4083919360","contact\_state":"CA","contact\_street\_address":"1650 Centre Pointe Drive","contact\_zip":"95035","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-09-28T21:17:16Z","created\_by\_id":346,"debt\_investor":"","decommissioning\_on":null,"desc":"JuiceBox advanced energy storage system DC-coupled to rooftop PV for emergency back-up and peak shifting. The Gardner Community Center hosts after school programs, senior citizen lunches and other neighborhood functions. It is counted by the community center and will be a gathering place in time of grid failure.","developer":"","electronics\_provider":"Schneider Electric","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1914,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1914/Gardner\_Equipment\_Picture\_2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1914/thumb\_Gardner\_Equipment\_Picture\_2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1914/partner\_Gardner\_Equipment\_Picture\_2.jpg"}},"integrator\_company":"JuiceBox Energy, Inc.","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.3197519,"longitude":-121.8955501,"master\_project\_id":null,"name":"Gardner Community Center Grid Resiliency with JuiceBox Energy Storage System","om\_contractor":"","organization":null,"owner\_1":"City of San Jose","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"6kWh daily peak-shift, over 98% availability for back-up power","primary\_reference":"http://www.sanjoseinfo.org/external/content/document/1914/2601754/1/JuiceBox%20Energy%20Partners%20with%20San%20Jose%20through%20City's%20Innovative%20Demonstration%20Partnership%20Program.pdf","primary\_reference1":null,"projected\_lifetime":"12.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":6,"size\_kwh":1.5,"size\_kwh\_hours":1,"size\_kwh\_minutes":30.0,"state":"California","status":"Operational","street\_address":"520 W. Virginia St","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-17T00:16:44Z","updated\_at\_by\_admin":"2016-05-17T00:16:44Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"JuiceBox Energy, Inc.","zip":"95125"}},{"project":{"announcement\_on":"2022-06-01","approval\_status":1,"city":"Budweis","commissioning\_on":null,"companion":"76 kW Rooftop Solar","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"energysolutions@gildemeister.com","contact\_info\_visible":true,"contact\_name":"Lucienne Sproll","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Czech Republic","created\_at":"2015-09-28T21:37:39Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This project was installed for the South Bohemian Science and Technology Park, located in Budweis, about 100 kilometers south of Prague. The Park is located on the campus of the University of South Bohemia and serves as entrepreneurial innovation center.\r\n\r\nThe Vanadium-Redox-Flow storage system CellCube FB 30-130 installed, works in combination with a 76 kWp photovoltaic system. The storage system, with a power output of up to 30 kW and a storage capacity of 130 kWh, is used in order to increase the self-consumption level of the building, but also as safeguard in case of blackouts.","developer":"B64, s.r.o","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1915,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1915/Gildemeister\_Budweis\_Science\_and\_Tech.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1915/thumb\_Gildemeister\_Budweis\_Science\_and\_Tech.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1915/partner\_Gildemeister\_Budweis\_Science\_and\_Tech.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.9770134,"longitude":14.4489489,"master\_project\_id":null,"name":"South Bohemian Science and Technology Park","om\_contractor":"","organization":null,"owner\_1":"South Bohemian Science and Technology Park","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://energy.gildemeister.com/en/company/news/b64/381820","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":30,"size\_kwh":4.33333333333333,"size\_kwh\_hours":4,"size\_kwh\_minutes":20.0,"state":"Bohemia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-27T20:44:28Z","updated\_at\_by\_admin":"2015-10-26T17:44:50Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"GILDEMEISTER energy storage GmbH","zip":""}},{"project":{"announcement\_on":"2022-07-18","approval\_status":1,"city":"Meggen","commissioning\_on":"2022-09-15","companion":"","construction\_on":"2022-10-14","contact\_city":"","contact\_country":"","contact\_email":"; m.schmidt@e-speicher.com","contact\_info\_visible":false,"contact\_name":"Hansperter Amrein; Marco Schmidt","contact\_phone":"+41 41 249 57 49; ","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Switzerland","created\_at":"2015-10-06T20:39:55Z","created\_by\_id":357,"debt\_investor":"","decommissioning\_on":null,"desc":"CKW, a Swiss distribution system operator (DSO), is testing and installing several storage systems at castle Meggenhorn. The energy storage system is integrated with PV and the energy management system (EMS) Ampard. The system is used for multiple services including frequency regulation and voltage support.","developer":"ENPLA / E-SpeicherWerk","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1916,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1916/1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1916/thumb\_1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1916/partner\_1.jpg"}},"integrator\_company":"ENPLA / E-SpeicherWerk","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.0458287,"longitude":8.3724158,"master\_project\_id":null,"name":"CKW E-SpeicherWerk Castle Meggenhorn","om\_contractor":"","organization":null,"owner\_1":"CKW","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available. ","primary\_reference":"http://www.e-speicher.com/de/referenzen/energieerzeugung-im-schlosspark-meggenhorn","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Ramping ","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":55,"size\_kwh":2.08333333333333,"size\_kwh\_hours":2,"size\_kwh\_minutes":5.0,"state":"Luzern","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-01-19T22:57:46Z","updated\_at\_by\_admin":"2016-01-19T22:57:46Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"Pfenning Elektroanlagen GmbH","zip":""}},{"project":{"announcement\_on":"2022-09-10","approval\_status":1,"city":"SCE Territory","commissioning\_on":null,"companion":"Rooftop Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"smerkelson@solarcity.com; tom@sunspec.org","contact\_info\_visible":true,"contact\_name":"Suzanne Merkelson; Tom Tansy","contact\_phone":"Suzanne - 908-578-5012; Tom - 831-227-1073","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":4000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2015-10-12T20:53:45Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"SolarCity announced a smart energy homes demonstration project in partnership with the SunSpec Alliance and Southern California Edison, where SolarCity will install rooftop solar PV, batteries, controllable thermostats, and smart inverters on 50 homes in the Southern California Edison territory. The team will demonstrate how smart energy homes, combining numerous distributed technologies, can be deployed and aggregated to advance the evolution of the electrical grid.\r\n\r\nIn addition to driving cost savings for residential customers, SolarCity intends to aggregate the portfolio of the 50 homes to provide distribution grid support as well as ancillary services into the CAISO wholesale market. SolarCity will use the data from the project to demonstrate the magnitude of benefits that these aggregated smart energy homes can offer to customers, the distribution grid, and wholesale markets.","developer":"SunSpec Alliance","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":2000000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Commercialization Incentive","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"California Energy Commission - CEC PON 14-303","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1917,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"SolarCity","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":36.778261,"longitude":-119.4179324,"master\_project\_id":null,"name":"Smart Energy 50 Home Pilot Project - SunSpec / SolarCity","om\_contractor":"","organization":null,"owner\_1":"SolarCity","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.solarcity.com/newsroom/press/solarcity-and-partners-announce-smart-energy-homes-pilot-project","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"UCSD is a leader in the field of renewable energy and microgrids.","research\_institution":"University of California San Diego","research\_institution\_link":"http://cer.ucsd.edu/","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Bill Management with Renewables","service\_use\_case\_4":"Grid-Connected Residential (Reliability)","service\_use\_case\_5":"Onsite Renewable Generation Shifting","service\_use\_case\_6":"Renewables Capacity Firming","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-11-02T21:37:51Z","updated\_at\_by\_admin":"2015-11-02T21:37:51Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Juelich","commissioning\_on":"2022-10-12","companion":"","construction\_on":null,"contact\_city":"Juelich","contact\_country":"Germany","contact\_email":"christoph.treppmann@stornetic.com; thilo.engelmann@stornetic.com; graf.peter@swm.de","contact\_info\_visible":false,"contact\_name":"Christoph Treppmann; Thilo Engelman; Peter Graf","contact\_phone":"+4916097251502","contact\_state":"NRW","contact\_street\_address":"Stetternicher Staatsforst","contact\_zip":"52428","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2015-10-13T04:26:31Z","created\_by\_id":358,"debt\_investor":"","decommissioning\_on":null,"desc":"High Speed Flywheel energy storage for short term applications.\r\nOperated by a German Utility, Stadtwerke Munich (https://www.swm.de/english.html).\r\nThe storage is working within a virtual power plant distributed around Munich.\r\nThis constellation is supported by the German regulation.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1918,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1918/Container-Demonstrator\_Aussen.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1918/thumb\_Container-Demonstrator\_Aussen.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1918/partner\_Container-Demonstrator\_Aussen.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":50.9323312,"longitude":6.3782481,"master\_project\_id":null,"name":"Juelich DuraStor","om\_contractor":"","organization":"Stornetic GmbH; Stornetic GmbH; Stadtwerke Munich","owner\_1":"Stornetic GmbH","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.stornetic.com","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":420,"size\_kwh":0.133333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":8.0,"state":"NRW","status":"Operational","street\_address":"Stetternicher Staatsforst","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2018-01-05T01:29:16Z","updated\_at\_by\_admin":"2016-01-22T18:41:46Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Stadtwerke Munich","utility\_type":"State/Municipal Owned","vendor\_company":"Stornetic GmbH","zip":"52428"}},{"project":{"announcement\_on":"2022-05-01","approval\_status":2,"city":"Camp Pendleton","commissioning\_on":"2022-09-01","companion":"","construction\_on":"2022-04-01","contact\_city":"","contact\_country":"","contact\_email":"slewis@cleanspark.com","contact\_info\_visible":true,"contact\_name":"Sara Lewis","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Specialized Energy Solutions","contractor\_2":"","contractor\_3":"","cost\_CAPEX":3960000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2015-10-13T17:27:57Z","created\_by\_id":350,"debt\_investor":"N/A","decommissioning\_on":null,"desc":"Partially funded by a California Energy Commission grant, the project features energy storage systems that include Quantum Energy Storage Corporation, Imergy and Amber Kinetics coupled with a 525 kW solar array at the US Marine Corps’ Base at Camp Pendleton, California. The system’s capabilities and peformance have been validated by the United States Marine Corps and include critical load protection, peak shaving, and renewable power/storage management applications.\r\n\r\n\r\n\r\nCalifornia Energy Commission (CEC) had in 2013 allocated $1.7 million to the US Marine Corps to set up the microgrid. The system integrated with CleanSpark’s FractalGrid project is expected to help establish a network of distributed microgrid solutions with a high penetration of renewables and a rapidly scaliable, secure architecture. Video can be seen here: https://www.youtube.com/watch?v=IqUEe8HmKOU","developer":"CleanSpark","electronics\_provider":"Multiple","energy\_management\_software\_provider":null,"funding\_amount\_1":2260000.0,"funding\_amount\_2":1700000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"State/Provincial/Regional Grant","funding\_source\_3":"","funding\_source\_details\_1":"United States Navy - MILCON Funding","funding\_source\_details\_2":"California Energy Commission (CEC) - PIER Grant Funding","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1919,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1919/1919\_-\_Quantum\_Energy\_Storage.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1919/thumb\_1919\_-\_Quantum\_Energy\_Storage.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1919/partner\_1919\_-\_Quantum\_Energy\_Storage.jpg"}},"integrator\_company":"CleanSpark","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.4209412,"longitude":-117.4321452,"master\_project\_id":null,"name":"Camp Pendleton Fractal Grid Demonstration","om\_contractor":"CleanSpark","organization":null,"owner\_1":"CleanSpark","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"100% renewable, 100% capacity factor, 100% reliability","primary\_reference":"http://www.cospp.com/articles/2015/09/us-marine-corp-utilising-microgrid-energy-storage-project.html","primary\_reference1":null,"projected\_lifetime":"30.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":30,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2016-01-26T18:45:27Z","updated\_at\_by\_admin":"2016-01-26T18:45:27Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"Quantum Energy Storage Corporation, Imergy, Amber Kinetics","zip":"92055"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Berlin","commissioning\_on":"2022-08-30","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"bismarck@qinous.com","contact\_info\_visible":true,"contact\_name":"Busso v. Bismarck","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Qinous","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2015-10-19T15:41:13Z","created\_by\_id":305,"debt\_investor":"","decommissioning\_on":null,"desc":"Qinous Mini Grid Demonstrator including: Simulator for Load, PV/Wind (100kW each), 150kW Diesel Genset, 20kW/80kWh Aqueous Hybrid Ion Battery, 100kW/112kWh Lithium Ion Energy Storage Solution incl. Site-Controller.","developer":"Qinous","electronics\_provider":"Qinous","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1923,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1923/demonstrator-63.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1923/thumb\_demonstrator-63.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1923/partner\_demonstrator-63.jpg"}},"integrator\_company":"Qinous","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":52.4577228,"longitude":13.5261362,"master\_project\_id":"1633","name":"Qinous Demonstrator Site - Aquion","om\_contractor":"Qinous","organization":null,"owner\_1":"Qinous GmbH","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.qinous.com/home/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":20,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Germany","status":"Operational","street\_address":"Wilhelminenhofstr 75","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-ion Battery","technology\_type\_l1":"Sodium-ion Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-01-20T00:25:21Z","updated\_at\_by\_admin":"2016-01-20T00:25:21Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Aquion Energy","zip":"12459"}},{"project":{"announcement\_on":"2022-10-14","approval\_status":1,"city":"Honolulu","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Millbrae","contact\_country":"United States","contact\_email":"stem@antennagroup.com","contact\_info\_visible":true,"contact\_name":"","contact\_phone":"","contact\_state":"California","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-10-26T21:11:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Watanabe Floral, a family-operated kama‘aina company, has installed the first Stem Inc. energy storage system on the Hawaiian Electric Company grid to reduce business costs and help support grid stability as distributed solar generated electricity increases. Watanabe Floral has entered into a standard interconnection agreement with Hawaiian Electric to connect its new 36-kilowatt energy storage system to the grid. This project is part of a larger $2.1 million pilot program supported by Energy Excelerator, a program of the Pacific International Center for High Technology Research (PICHTR), Stem and Hawaiian Electric. ","developer":"","electronics\_provider":"Stem, Inc.","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"Private/Third Party Grant","funding\_source\_3":"","funding\_source\_details\_1":"Hawaii Energy Excelerator: DOE/US Navy","funding\_source\_details\_2":"Pacific International Center for High Technology Research (PICHTR)","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1925,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1925/1924\_-\_WATANABE-FLORAL.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1925/thumb\_1924\_-\_WATANABE-FLORAL.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1925/partner\_1924\_-\_WATANABE-FLORAL.jpg"}},"integrator\_company":"Stem, Inc.","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":21.3236186,"longitude":-157.8812698,"master\_project\_id":null,"name":"36 kW Watanabe Floral Project","om\_contractor":"","organization":null,"owner\_1":"Stem, Inc.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.solarnovus.com/stem-and-hawaii-electric-cooperate-on-behind-the-meter-energy-storage\_N9345.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"PICHTR's vision is to facilitate the adoption and implementation of sustainable development practices throughout the region, and become a leader in planning, development, evaluation and deployment of appropriate and renewable technologies.","research\_institution":"Pacific International Center for High Technology Research (PICHTR)","research\_institution\_link":"http://www.pichtr.org/home","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":36,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Hawaii","status":"Operational","street\_address":"1618 N Nimitz Hwy","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-27T21:04:15Z","updated\_at\_by\_admin":"2015-10-26T21:39:10Z","updated\_by":null,"updated\_by\_email":null,"utility":"Hawaiian Electric Company","utility\_type":"Investor Owned","vendor\_company":"Stem, Inc.","zip":"96819"}},{"project":{"announcement\_on":"2022-10-26","approval\_status":1,"city":"East Dorset","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Westbrook","contact\_country":"United States","contact\_email":"ahickok@pika-energy.com, cmeans@pika-energy.com","contact\_info\_visible":true,"contact\_name":"Andrew Hickok; Chip Means","contact\_phone":"207-807-8045; 207-749-6570","contact\_state":"Maine","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-10-27T00:06:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Vermont’s first “ePark” will be created with a combination of solar power and Tesla Powerwall batteries. Pika Energy has been chosen by Green Mountain Power to plan and design Emerald Lake State Park so it will be powered by sunlight, with the Tesla batteries providing backup electricity.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1928,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1928/1926\_-\_Emerald-Lake-State-Park-VT.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1928/thumb\_1926\_-\_Emerald-Lake-State-Park-VT.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1928/partner\_1926\_-\_Emerald-Lake-State-Park-VT.jpg"}},"integrator\_company":"Pika Energy","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":43.2808225,"longitude":-73.0049379,"master\_project\_id":null,"name":"Emerald Lake State Park ","om\_contractor":"","organization":null,"owner\_1":"Green Mountain Power","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://cleantechnica.com/2015/10/26/solar-panels-tesla-powerwall-batteries-to-power-vermont-park/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Vermont","status":"Announced","street\_address":"65 Emerald Lake Ln","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-01-20T01:49:49Z","updated\_at\_by\_admin":"2016-01-20T01:49:49Z","updated\_by":null,"updated\_by\_email":null,"utility":"Green Mountain Power","utility\_type":"","vendor\_company":"Tesla Motors, Inc.","zip":"05253"}},{"project":{"announcement\_on":"2022-07-01","approval\_status":1,"city":"Port Allen","commissioning\_on":"2022-12-07","companion":"6 MW Solar Farm","construction\_on":null,"contact\_city":"Lihu'e","contact\_country":"United States","contact\_email":"jpcox@kiuc.coop","contact\_info\_visible":true,"contact\_name":"John Cox","contact\_phone":"808-246-8205","contact\_state":"Hawaii","contact\_street\_address":"4463 Pahe'e Street, Suite 1","contact\_zip":"96766-2000","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-10-30T21:18:12Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The 6-megawatt polycrystalline panel solar facility is integrated with a 3-megawatt Battery Energy Storage System installed by KIUC at the point of interconnection to the grid. The storage system creates greater stability on the KIUC system by maintaining a predictable flow of power from the Port Allen solar facility, along with other intermittent generation resources.","developer":"","electronics\_provider":"Xtreme Power","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1930,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1930/PortAllen-solar.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1930/thumb\_PortAllen-solar.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1930/partner\_PortAllen-solar.png"}},"integrator\_company":"Alexander & Baldwin","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":21.9061111,"longitude":-159.5891667,"master\_project\_id":null,"name":"KIUC Port Allen Solar and BESS","om\_contractor":"","organization":"","owner\_1":"Kauai Island Utility Cooperative","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.power-technology.com/uncategorised/news125003-html/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":3000,"size\_kwh":0.666666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":40.0,"state":"Hawaii","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Advanced Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Advanced Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-27T04:22:19Z","updated\_at\_by\_admin":"2015-10-30T21:36:11Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Kauai Island Utility Cooperative","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"","zip":"96705"}},{"project":{"announcement\_on":"2022-08-29","approval\_status":1,"city":"Lausanne","commissioning\_on":"2022-10-26","companion":"Romande Energie-EPFL solar park","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"mario.paolone@epfl.ch; laurent.balsiger@vd.ch","contact\_info\_visible":true,"contact\_name":"Prof. Mario Paolone; Laurent Balsiger","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Switzerland","created\_at":"2015-10-30T22:16:22Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The system, which received extensive co-financing from the Canton of Vaud, is built around an industrial-capacity battery developed by Vaud-based company Leclanché. It is now connected to the Romande Energie-EPFL solar park and will be used to conduct real-world tests on the behavior of a power grid that is fed electricity from solar panels as part of the 'EPFL Smart Grid' project.\r\n\r\nIt will be able to hold up to 500 kWh, which is the equivalent of the average energy consumed by fifty Swiss households over the course of one day, while managing variations in power as a function of the sunshine.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Canton of Vaud","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1931,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1931/EPFL\_500kWh\_distributedlaboratory.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1931/thumb\_EPFL\_500kWh\_distributedlaboratory.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1931/partner\_EPFL\_500kWh\_distributedlaboratory.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.5208057,"longitude":6.5839813,"master\_project\_id":null,"name":"EPFL/Leclanche Distributed Electrical Systems Laboratory","om\_contractor":"","organization":"EPFL; Canton of Vaud","owner\_1":"EPFL","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.romande-energie.ch/images/Files/communiques\_archives/140901\_communique\_en.pdf","primary\_reference1":"https://actu.epfl.ch/news/leclanche-and-epfl-innovate-to-store-solar-energy/","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"The École polytechnique fédérale de Lausanne (EPFL, English: Swiss Federal Institute of Technology in Lausanne) is a research university in Lausanne, Switzerland, that specialises in physical sciences and engineering","research\_institution":"ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE EPFL","research\_institution\_link":"http://www.epfl.ch/","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":720,"size\_kwh":0.7,"size\_kwh\_hours":0,"size\_kwh\_minutes":42.0,"state":"Canton of Vaud","status":"Operational","street\_address":"Route Cantonale, 1015","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium Ion Titanate Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-23T16:36:31Z","updated\_at\_by\_admin":"2016-01-20T01:48:29Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Romande Energie","utility\_type":"","vendor\_company":"Leclanche","zip":""}},{"project":{"announcement\_on":"2022-07-07","approval\_status":1,"city":"Kailua-Kona","commissioning\_on":null,"companion":"412-kW solar photovoltaic (PV) array","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"mmontague@ensync.com","contact\_info\_visible":true,"contact\_name":"Michelle Montague","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-10-30T23:40:14Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"EnSync Energy, through its Pacific region project developer Holu Energy, is developing a combined solar energy distributed generation and advanced energy management system project at University of the Nations, located on the island of Hawaii. The total system features a 412-kilowatt solar photovoltaic unit, EnSync's intelligent energy management platform and hybrid energy storage technology to lower the university's electricity costs via a 20-year Power Purchase Agreement (PPA), which was first announced on July 7, 2015. The state-of-the-art technology will provide the university protection against power outages, while also benefiting the electricity grid by easing pressure on it. ","developer":"Holu Energy / EnSync Energy Systems (formerly ZBB)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1932,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1932/1930\_-\_flyoverUofNCampus.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1932/thumb\_1930\_-\_flyoverUofNCampus.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1932/partner\_1930\_-\_flyoverUofNCampus.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":19.631841,"longitude":-155.9863651,"master\_project\_id":null,"name":"University of the Nations (Kona, Hawaii) - EnSync Energy (formerly ZBB Energy)","om\_contractor":"","organization":null,"owner\_1":"University of Nations","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Projected to save $2.4 million over 20-year PPA","primary\_reference":"http://ensync.mwnewsroom.com/press-releases/ensync-and-holu-energy-begin-solar-storage-project-that-reduces-u-of-the-nations-nyse-mkt-esnc-1223895","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Hawaii","status":"Announced","street\_address":"75-5851 Kuakini Hwy","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-11-06T22:20:38Z","updated\_at\_by\_admin":"2015-11-06T22:20:38Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Holu Energy / EnSync Energy Systems (formerly ZBB)","zip":"96740"}},{"project":{"announcement\_on":"2022-10-29","approval\_status":1,"city":"Riyadh","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"jim.mcdowall@saftbatteries.com","contact\_info\_visible":true,"contact\_name":"Jim McDowall","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Saudi Arabia","created\_at":"2015-10-31T00:24:33Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"SABIC’s Home of Innovation facility in Riyadh’s Techno-Valley is part of a global Initiative to promote growth in Saudi Arabia and in the Middle East by engaging the local and regional market through industry events and targeted collaboration. It will show how advanced technology can enable modern, comfortable and sustainable living powered by green, renewable energy resources.\r\n \r\nSaft is supplying 48 Li-ion modules capable of providing a nominal peak power of 20 kW and up to 187 kWh of energy storage. The complete system will occupy just one third of the space required by a conventional lead-acid battery system and at only one quarter of the weight.\r\n ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1933,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1933/1932\_-\_SABIC.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1933/thumb\_1932\_-\_SABIC.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1933/partner\_1932\_-\_SABIC.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":25.0054482,"longitude":46.544831,"master\_project\_id":null,"name":"20 kW / 187 kWh - SABIC Home of Innovation - Saft","om\_contractor":"","organization":null,"owner\_1":"SABIC","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.saftbatteries.com/press/press-releases/saft-connects-sabic-s-home-innovationtm-initiative-promote-growth-saudi-arabia","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Load Following (Tertiary Balancing)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":20,"size\_kwh":9.35,"size\_kwh\_hours":9,"size\_kwh\_minutes":21.0,"state":"Riyadh Province","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-10-31T00:31:37Z","updated\_at\_by\_admin":"2015-10-31T00:31:37Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Saft","zip":""}},{"project":{"announcement\_on":"2022-10-20","approval\_status":2,"city":"Brooklyn","commissioning\_on":null,"companion":"4.7 MW wind farm consisting of two Enercon E-92 wind energy converters","construction\_on":null,"contact\_city":"Berkeley","contact\_country":"United States","contact\_email":"toguin@lightsail.com; contact@lightsailenergy.com","contact\_info\_visible":true,"contact\_name":"Travis O'Guin","contact\_phone":"510-981-8088 x127","contact\_state":"CA","contact\_street\_address":"914 Heinz Avenue","contact\_zip":"94710","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2015-11-06T17:08:15Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"The Liverpool project will demonstrate LightSail's Regenerative Air Energy Storage (RAES) technology and Unify's Grid-Level Advanced System Software (GLASS). The storage system will be located in the Innovacorp Demonstration Center, the re-purposed site of the former Bowater Mersey Paper Mill. The storage will be interconnected to the local distribution grid and act as a buffer to the output of a 4.7 MW wind farm consisting of two Enercon E-92 wind energy converters. Waste heat from a nearby industrial facility will be used to boost the efficiency of RAES. \r\n\r\nThis project is the first wind + RAES system ever developed, as well as the first RAES system integrated with an industrial waste heat source. It will also be the first grid interconnected energy storage system in Nova Scotia. With an air compressor/expander and light, cost-efficient air tanks wrapped in carbon fibre, LightSail uses compressed air to store energy. LightSail has dramatically improved efficiency by using water, allowing for higher-pressure expansion.\r\n","developer":"Unify Energy, Inc.","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1934,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Watts Wind Energy Inc.","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":44.0570375,"longitude":-64.6870236,"master\_project\_id":null,"name":"500 kW / 3 MWh - Liverpool Wind and Energy Storage Project","om\_contractor":"","organization":null,"owner\_1":"Liverpool Wind Energy Storage Project Inc.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://thechronicleherald.ca/business/1317793-lightsail-wind-project-on-track-for-testing-at-queens-county-site-next-year","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_5":"Microgrid Capability","service\_use\_case\_6":"Onsite Renewable Generation Shifting","service\_use\_case\_7":"Renewables Energy Time Shift","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Nova Scotia","status":"Announced","street\_address":"77 Innovation Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Modular Iso-thermal Compressed Air","technology\_type\_l1":"Compressed Air Storage","technology\_type\_l2":"Electro-mechanical","technology\_type\_l3":"Electro-mechanical","updated\_at":"2016-01-20T02:36:07Z","updated\_at\_by\_admin":"2016-01-20T02:36:07Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"LightSail Energy Inc.","zip":"B0J 1H0"}},{"project":{"announcement\_on":"2022-10-21","approval\_status":1,"city":"Postmasburg","commissioning\_on":"2021-12-31","companion":" 75 MW Lesedi and 96 MW Jasper photovoltaic solar power projects","construction\_on":null,"contact\_city":"East Santa Monica","contact\_country":"United States","contact\_email":"mary.grikas@solarreserve.com","contact\_info\_visible":true,"contact\_name":"Mary Grikas, VP of Communications","contact\_phone":"+1.310.315.2274","contact\_state":"California","contact\_street\_address":"2425 Olympic Blvd. Suite 500","contact\_zip":"90404","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":715000000.0,"cost\_OPEX":null,"country":"South Africa","created\_at":"2015-11-06T17:18:54Z","created\_by\_id":350,"debt\_investor":"Overseas Private Investment Corporation (OPIC)","decommissioning\_on":null,"desc":"The Redstone Solar Thermal Power Project features SolarReserve’s molten salt energy storage technology in a tower configuration with the capability to support South Africa’s demand for energy when it’s needed most - day and night. The 100 MW project with 12 hours of full-load energy storage will be able to reliably deliver a stable electricity supply to more than 200,000 South African homes during peak demand periods, even well after the sun has set. Fueled completely by the sun, with no back up fuel required, the project also features dry cooling of the power generation cycle as an important element to minimize water use.","developer":"Arabian Company for Water and Power Development (ACWA Power)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1935,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1935/Norhtern\_Cape\_Redsonte\_-\_ES\_Project.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1935/thumb\_Norhtern\_Cape\_Redsonte\_-\_ES\_Project.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1935/partner\_Norhtern\_Cape\_Redsonte\_-\_ES\_Project.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-28.3092768,"longitude":23.1084191,"master\_project\_id":null,"name":"100MW / 1200 MWh - Redstone Solar Thermal Power Project","om\_contractor":"","organization":null,"owner\_1":"Arabian Company for Water and Power Development (ACWA Power)","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Power tariff offered at $124/MWh","primary\_reference":"http://www.solarreserve.com/en/global-projects/csp/redstone","primary\_reference1":null,"projected\_lifetime":"30.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100000,"size\_kwh":12.0,"size\_kwh\_hours":12,"size\_kwh\_minutes":0.0,"state":"Northern Cape Province","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Molten Salt Thermal Storage","technology\_type\_l1":"Molten Salt Thermal Storage","technology\_type\_l2":"Molten Salt Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2015-11-12T18:09:27Z","updated\_at\_by\_admin":"2015-11-12T18:09:27Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"SolarReserve","zip":""}},{"project":{"announcement\_on":"2022-10-25","approval\_status":1,"city":"Jordan","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"acolthorpe@pv-tech.org","contact\_info\_visible":true,"contact\_name":"Andy Colthorpe ","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Jordan","created\_at":"2015-11-06T17:30:39Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"Jordan’s state power company, NEPCO (National Electric Company), plans to deploy 20 MW of battery-based energy storage, which will be aimed at easing the integration of wind and solar into the country’s energy networks.\r\n\r\nAES and NEPCO signed a Memorandum of Understanding (MoU) for the project, which would make the Kingdom something of an early leader in energy storage in the wider region. The system, utilizing AES’ Advancion platform, will be able to draw power from the grid as well as push it out, meaning the batteries will serve as an effective 40MW of flexibility resources.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1936,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":30.585164,"longitude":36.238414,"master\_project\_id":null,"name":"Kingdom of Jordan - NEPCO ","om\_contractor":"","organization":null,"owner\_1":"National Electric Company of Jordan (NEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://storage.pv-tech.org/news/kingdom-of-jordan-signs-mou-for-20mw-of-grid-connected-storage-from-aes","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Grid-Connected Residential (Reliability)","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":20000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Jordan","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-25T18:00:31Z","updated\_at\_by\_admin":"2016-05-25T18:00:31Z","updated\_by":null,"updated\_by\_email":null,"utility":"National Electric Company of Jordan (NEPCO)","utility\_type":"Federally Owned","vendor\_company":"AES Corporation","zip":""}},{"project":{"announcement\_on":"2022-11-05","approval\_status":1,"city":"Bani Barangay","commissioning\_on":"2022-07-01","companion":"600 MW Masinloc coal plant","construction\_on":"2021-12-15","contact\_city":"","contact\_country":"Philippines","contact\_email":"commercial.ph@aes.com","contact\_info\_visible":true,"contact\_name":"AES Philippines","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Philippines","created\_at":"2015-11-12T19:01:34Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This project appears to have been delayed.\r\n\r\nAES Philippines reported it will set up a 10-megawatt (MW) battery-based energy storage facility in Zambales, the first to be built in the country. The storage facility is expected to be completed by middle of next year. It will be set up beside the company’s 600 MW Masinloc coal plant. Excess electricity produced by the coal plant or from other sources will be stored in batteries for use when regular supply to the grid falls short of requirement.\r\n\r\nAES said the battery storage project will enhance grid reliability. It will also eventually lower power costs as it can improve the stability of transmission systems.\r\n\r\nEnergy storage will help add to the low reserve capacity of the Philippines. It will also help store energy coming from the new renewable energy plants that will go online and help ease challenges associated with an island-based grid system.","developer":"AES Philippines","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1938,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1938/masinloc\_powerplant.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1938/thumb\_masinloc\_powerplant.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1938/partner\_masinloc\_powerplant.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":15.5081766,"longitude":119.9697808,"master\_project\_id":null,"name":"Masinloc Coal Plant ESS - AES","om\_contractor":"","organization":"","owner\_1":"AES Corporation","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.malaya.com.ph/business-news/business/10mw-energy-storage-okayed","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Zambales","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-27T21:50:53Z","updated\_at\_by\_admin":"2016-06-01T00:46:28Z","updated\_by":null,"updated\_by\_email":null,"utility":"AES Corporation","utility\_type":"Investor Owned","vendor\_company":"AES Energy Storage","zip":""}},{"project":{"announcement\_on":"2022-10-01","approval\_status":1,"city":"Irvine","commissioning\_on":"2021-12-17","companion":"","construction\_on":null,"contact\_city":"San Francisco; Irvine","contact\_country":"United States","contact\_email":"dennenh@advmicrogrid.com; officeproperties@irvinecompany.com","contact\_info\_visible":false,"contact\_name":"Dennen Hansen; N/A","contact\_phone":"415-638-6146; (949) 720-2550","contact\_state":"CA; California","contact\_street\_address":"25 Stillman St; 111 Innovation Drive","contact\_zip":"94107; 92617","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-11-12T20:17:03Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Irvine Company recently announced plans to have energy-storing battery systems – about the size of a few parking spaces – installed at many of its office properties, starting with 20 Pacifica, a 15-story office tower along I-405 in Irvine.\r\n\r\nThe company is partnering with San Francisco-based Advanced Microgrid Solutions to install the systems portfolio-wide. Irvine Co. has more than 500 buildings, which encompass nearly 40 million square feet.\r\n\r\nSouthern California Edison will monitor the energy storage systems and draw energy in high-demand situations. The systems are expected to cut the buildings’ use of peak energy by 25 percent, lowering the company’s power bills.","developer":"Advanced Microgrid Solutions (AMS)","electronics\_provider":"Dynapower","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1939,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1939/AMS20Pacifica.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1939/thumb\_AMS20Pacifica.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1939/partner\_AMS20Pacifica.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.6506553,"longitude":-117.749707,"master\_project\_id":null,"name":"20 Pacifica Irvine Co Hybrid-Electric Building - Advanced Microgrid Solutions","om\_contractor":"","organization":"Advanced Microgrid Solutions (AMS), Irvine Company","owner\_1":"Advanced Microgrid Solutions (AMS)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://advmicrogrid.com/projects.html","primary\_reference1":"http://www.ocregister.com/articles/irvine-696565-company-energy.html","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":250,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"20 Pacifica","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-02T05:16:49Z","updated\_at\_by\_admin":"2016-07-28T22:02:09Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Tesla","zip":"92618"}},{"project":{"announcement\_on":"2022-11-03","approval\_status":1,"city":"Denver","commissioning\_on":"2021-12-31","companion":"1.3 MW solar photovoltaic","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"frank.novachek@xcelenergy.com","contact\_info\_visible":true,"contact\_name":"Frank Novachek","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":14300000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2015-11-12T21:26:54Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Xcel Energy has proposed adding two storage components to solar energy projects: one targeting the Panasonic Enterprise Solutions facility, planned for Denver. At the Panasonic facility, the utility wants to install a 1.3 MW solar array alongside a 2 MWh battery system.\r\n\r\nThe energy storage demo would be conducted via the utility’ Innovative Clean Technology program. The PUC has approved the program, but most also approve individual projects. Xcel said it is partnering with Panasonic, Denver International Airport, Denver developer L.C. Fulenwider Inc., and the city of Denver on a “battery microgrid with solar integration project,” located on a commercial feeder power line near the airport.","developer":"L.C. Fulenwider Inc.","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1940,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.7392358,"longitude":-104.990251,"master\_project\_id":null,"name":"Panasonic Enterprise Solutions Facility (Xcel Energy Storage)","om\_contractor":"","organization":null,"owner\_1":"Panasonic","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.utilitydive.com/news/xcel-proposes-2-solar-storage-projects-in-denver/408473/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"Renewables Energy Time Shift","service\_use\_case\_7":"Resiliency","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Colorado","status":"Announced","street\_address":"61st Avenue and Peña Boulevard","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-11-12T23:38:43Z","updated\_at\_by\_admin":"2015-11-12T23:09:47Z","updated\_by":null,"updated\_by\_email":null,"utility":"Xcel Energy","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-10-30","approval\_status":1,"city":"Denver","commissioning\_on":"2021-12-31","companion":"Residential Rooftop Solar","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"frank.novachek@xcelenergy.com","contact\_info\_visible":true,"contact\_name":"Frank Novachek","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-11-12T21:44:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Xcel Energy filed proposals on two solar-storage projects with regulators in Colorado. One of those is in the Stapleton residential neighborhood. The energy storage location will be on Xcel’s “feeder” power line that provides power to the North Central Park and Eastbridge neighborhoods in Stapleton. This feeder line supports more than 330 rooftop solar installations which can supply up to 18.5 percent of the power line’s capacity, one of the highest levels of solar penetration on Xcel’s grid in the state. Up to six battery storage systems of multiple sizes will be deployed at strategic locations along the distribution feeder line. Support from both the Electric Power Research Institute, an industry group, and the National Renewable Energy Laboratory in Golden, CO will be provided for analysis.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1941,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.7780041,"longitude":-104.9109103,"master\_project\_id":null,"name":"Stapleton Neighborhood Energy Storage (Xcel Energy)","om\_contractor":"","organization":null,"owner\_1":"Xcel Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.bizjournals.com/denver/blog/earth\_to\_power/2015/10/xcel.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"The Electric Power Research Institute, Inc. conducts research, development and demonstration (RD&D) relating to the generation, delivery and use of electricity for the benefit of the public.","research\_institution":"Electric Power Research Institute (EPRI)","research\_institution\_link":"http://www.epri.com/","service\_use\_case\_1":"Grid-Connected Residential (Reliability)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Transmission Support","service\_use\_case\_4":"Transmission upgrades due to solar","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Colorado","status":"Operational","street\_address":"Stapleton Neighborhood","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-11-12T21:58:01Z","updated\_at\_by\_admin":"2015-11-12T21:48:35Z","updated\_by":null,"updated\_by\_email":null,"utility":"Xcel Energy","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-10-29","approval\_status":1,"city":"Garden Island","commissioning\_on":"2022-07-01","companion":"1 MW Wave Power and 2 MW Solar PV Power","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"enquiries@carnegiewave.com","contact\_info\_visible":true,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2015-11-12T22:42:03Z","created\_by\_id":1,"debt\_investor":"Clean Energy Finance Corporation","decommissioning\_on":null,"desc":"Wave power company Carnegie Wave Energy has revealed that it is in collaboration with Western Australia network operator Western Power to develop the world’s first wave-integrated renewable energy microgrid project to be connected to an electricity network.\r\n\r\nThe Garden Island Microgrid Project will consist of Carnegie’s CETO 6 array, which is currently in progress, as well as the existing reverse osmosis desalination plant that is currently operating on Garden Island after being switched on last week. The microgrid will also have an additional 2MW peak, of solar PV power generation, as well as sufficient energy storage to allow safe, stable and reliable interaction with the electricity grid.","developer":"Australian Department of Defence","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":11000000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Australian Renewable Energy Agency","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1942,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1942/1943\_-\_CarnegieCETOaerial.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1942/thumb\_1943\_-\_CarnegieCETOaerial.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1942/partner\_1943\_-\_CarnegieCETOaerial.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-32.2429551,"longitude":115.6986301,"master\_project\_id":null,"name":"Garden Island Microgrid Project","om\_contractor":"","organization":null,"owner\_1":"Australian Department of Defence","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://reneweconomy.com.au/2015/carnegie-to-add-solar-battery-storage-to-create-world-first-wave-integrated-microgrid-66551","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"ARENA was established to make renewable energy solutions more affordable and increase the amount of renewable energy used in Australia.","research\_institution":"Australian Renewable Energy Agency","research\_institution\_link":"http://arena.gov.au/","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"Renewables Energy Time Shift","service\_use\_case\_7":"Resiliency","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Western Australia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-11-12T22:43:45Z","updated\_at\_by\_admin":"2015-11-12T22:42:36Z","updated\_by":null,"updated\_by\_email":null,"utility":"Western Power","utility\_type":"State/Municipal Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-11-01","approval\_status":1,"city":"Larne","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Belfast","contact\_country":"United Kingdom","contact\_email":"info@gaelectric.co.uk","contact\_info\_visible":true,"contact\_name":"Project Team - CASE Larne NI","contact\_phone":"02890 240 333","contact\_state":"Co Antrim","contact\_street\_address":"2nd Floor, Princes Dock, Clarendon Road","contact\_zip":"BT1 3BG","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2015-11-13T00:04:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Advanced energy storage project deploying compressed air energy storage (CAES) technology. This facility will generate up to 330 MW of power for periods of up to 6 hours. It will create demand of up to 200 MW during its compression cycle. The project involves the creation of two storage caverns within salt deposits which are a feature of the east Antrim coastal areas of Northern Ireland. These caverns will be located at depths of greater than 1400 m below ground. The facility will be highly responsive and will be capable of providing a range of tools to system operators in their management of the transmission grid.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":7100000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"European Project of Common Interest (PCI)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1943,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1943/1943\_-\_gaelImage.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1943/thumb\_1943\_-\_gaelImage.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1943/partner\_1943\_-\_gaelImage.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":54.8448772,"longitude":-5.8000087,"master\_project\_id":null,"name":"330 MW - Gaelectric Compressed Air Energy Storage (CAES)","om\_contractor":"","organization":"","owner\_1":"Gaelectric","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.project-caeslarne.co.uk/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":330000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"County Antrim","status":"Announced/Never Built","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"In-ground Compressed Air Storage","technology\_type\_l1":"Compressed Air Storage","technology\_type\_l2":"In-ground Compressed Air Storage","technology\_type\_l3":"Electro-mechanical","updated\_at":"2018-02-27T04:45:54Z","updated\_at\_by\_admin":"2015-11-13T00:06:32Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Gaelectric","utility\_type":"Investor Owned","vendor\_company":"Dresser-Rand","zip":""}},{"project":{"announcement\_on":"2022-10-28","approval\_status":1,"city":"Orenjestad","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"aaron.lampe@temporalpower.com","contact\_info\_visible":true,"contact\_name":"Aaron Lampe","contact\_phone":"905-581-4474 x301","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Aruba","created\_at":"2015-11-13T00:22:20Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"WEB Aruba and Temporal Power today announced the signing of an agreement for the installation of a 5 MW flywheel energy storage system on the island of Aruba. The installation is the first of its kind in Aruba and will support the country’s key initiatives in renewable energy. Aruba has committed to a goal of being 100 percent renewable by 2020 and has made significant progress with wind, solar and waste to gas generation already installed. The flywheel storage will ensure greater flexibility and resilience to the grid while simultaneously decreasing the amount of fossil fuel burned as part of energy production.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1944,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":12.5092044,"longitude":-70.0086306,"master\_project\_id":null,"name":"5 MW - WEB Aruba / Temporal Power (Phase 1)","om\_contractor":"","organization":null,"owner\_1":"WEB Aruba","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://temporalpower.com/news/web-aruba-and-temporal-power-announce-first-energy-storage-project/","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":5000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Aruba","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2015-11-13T00:27:09Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"WEB Aruba","utility\_type":"Federally Owned","vendor\_company":"Temporal Power","zip":""}},{"project":{"announcement\_on":"2022-11-18","approval\_status":1,"city":"Gapado","commissioning\_on":null,"companion":"Wind Farm","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"kfok@lgchem.com","contact\_info\_visible":false,"contact\_name":"Kevin Fok","contact\_phone":"248-825-1043","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2015-11-13T01:01:05Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"As part of Jeju Island's smart renewable demonstrations, LG Chem worked with POSCO and KEPCO to build a 1.5 MW / 500 kWh energy storage system to be sited near wind energy production","developer":"","electronics\_provider":"POSCO","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1945,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1945/1944\_-\_Jeju\_Posco\_LG\_Chem.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1945/thumb\_1944\_-\_Jeju\_Posco\_LG\_Chem.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1945/partner\_1944\_-\_Jeju\_Posco\_LG\_Chem.jpg"}},"integrator\_company":"POSCO Consortium","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.4996213,"longitude":126.5311884,"master\_project\_id":null,"name":"Jeju Island Smart Renewables (Gapado)","om\_contractor":"","organization":"LG Chem","owner\_1":"Korea Electric Power Corporation (KEPCO)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.ny-best.org/sites/default/files/type-page/34371/attachments/04%20Fok.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"Resiliency","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1500,"size\_kwh":0.333333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":20.0,"state":"Jeju-do","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T06:13:44Z","updated\_at\_by\_admin":"2015-11-13T01:03:18Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Public Owned","vendor\_company":"LG Chem","zip":""}},{"project":{"announcement\_on":"2022-10-05","approval\_status":1,"city":"South Murchison","commissioning\_on":null,"companion":"1.6 MW Solar Power Station","construction\_on":null,"contact\_city":"","contact\_country":"Australia","contact\_email":"Sid.Masilamani@energymadeclean.com; research@energystoragealliance.com.au; info@energymadeclean.com","contact\_info\_visible":true,"contact\_name":"Sid Masilamani; AESDB","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Energy Made Clean (EMC)","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2015-11-13T01:28:21Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The solar system being built to power one of Australia’s leading star-gazing facilities – the CSIRO’s Murchison Radio-astronomy Observatory (MRO) in Western Australia – could soon be combined with the nation’s biggest battery, after EMC (Energy Made Clean) was appointed to engineer, procure and construct a 2.5 MWh energy storage system at the site. \r\n\r\nThe lithium-ion battery system will be 100% designed, engineered and constructed by EMC – who are already in the process of building the Observatory’s 1.6 MW solar power station – at its Perth facility. Among telescopes the solar and storage system will be powering is CSIRO’s newest edition, the Australian Square Kilometre Array Pathfinder (ASKAP).\r\n\r\nOnce complete, it will be the world’s most powerful radio-telescope system, powered by the most sophisticated solar/storage/diesel energy system in the world.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1946,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1946/1945\_-\_Murchison-observatory.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1946/thumb\_1945\_-\_Murchison-observatory.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1946/partner\_1945\_-\_Murchison-observatory.jpg"}},"integrator\_company":"Energy Made Clean (EMC)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-27.3985247,"longitude":116.4094034,"master\_project\_id":null,"name":"CSIRO Murchison Radio-astronomy Observatory (MRO) - EMC","om\_contractor":"","organization":"Energy Made Clean (EMC); Australian Energy Storage Alliance (AESA)","owner\_1":"Commonwealth Scientific and Industrial Research Organisation (CSIRO)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.carnegiece.com/project/csiro-stand-alone-power-station/","primary\_reference1":"http://reneweconomy.com.au/2015/australias-largest-battery-to-be-added-to-solar-powered-astronomy-hub-87638","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"We ask, we seek, we solve. As Australia’s national science agency we’ve been pushing the edge of what’s possible for over 85 years — and we're not stopping now.","research\_institution":"Commonwealth Scientific and Industrial Research Organisation (CSIRO)","research\_institution\_link":"http://www.csiro.au/en","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"Resiliency","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":2.5,"size\_kwh\_hours":2,"size\_kwh\_minutes":30.0,"state":"Western Australia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:29:15Z","updated\_at\_by\_admin":"2016-05-26T18:34:08Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Energy Made Clean (EMC)","zip":"6635"}},{"project":{"announcement\_on":"2022-11-09","approval\_status":1,"city":"Herne","commissioning\_on":"2022-07-01","companion":"960 MW Herne Cogeneration Coal Power Plant","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"juergen.froehlich@steag.com","contact\_info\_visible":true,"contact\_name":"Dr. Jürgen Fröhlich - STEAG Press Officer","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Nidec ASI","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2015-11-16T20:18:36Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"Six large LG Chem lithium-ion battery storage units will be put into service at Steag power plants in Germany.\r\nThe 100 million euro project will see 15 MW energy storage systems (ESS) installed in power stations at Herne, Lünen, Duisburg-Walsum, Bexbach, Fenne, and Weiher.\r\n\r\nNidec ASI recently signed a contract worth over 70 million Euros with German utility STEAG for the supply of a multi system of energy storage with a total capacity of 90 MW. This system, based on Nidec ASI energy conversion solutions, will use batteries supplied by LG Chem to store electrical energy, which the utility will use to ensure the stability of Germany's electricity network.","developer":"","electronics\_provider":"Nidec ASI","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1948,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1948/1948\_-\_HERNE\_STEAG.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1948/thumb\_1948\_-\_HERNE\_STEAG.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1948/partner\_1948\_-\_HERNE\_STEAG.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.5368948,"longitude":7.2009147,"master\_project\_id":null,"name":"15 MW Energy Storage at Herne Cogeneration Plant - STEAG GmbH","om\_contractor":"","organization":null,"owner\_1":"STEAG GmbH","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.energymatters.com.au/renewable-news/battery-storage-germany-em5190/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":15000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"North Rhine-Westphalia","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-11-19T19:36:10Z","updated\_at\_by\_admin":"2015-11-19T19:36:10Z","updated\_by":null,"updated\_by\_email":null,"utility":"STEAG GmbH","utility\_type":"","vendor\_company":"LG Chem","zip":""}},{"project":{"announcement\_on":"2022-11-03","approval\_status":1,"city":" Lünen","commissioning\_on":"2022-11-01","companion":"","construction\_on":"2022-11-03","contact\_city":"","contact\_country":"Germany","contact\_email":"marcus.fendt@mobilityhouse.com","contact\_info\_visible":true,"contact\_name":"Marcus Fendt","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2015-11-16T20:37:15Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"Daimler and The Mobility House under its joint venture Enbase Power announced a 13-megawatt-hour battery storage unit at the Remondis recycling plant in Lünen, Germany that uses “second-life” EV batteries. Batteries that are too depleted to reliably propel a car, but still have a significant amount of remaining capacity. Daimler claims this is the largest deployment of second-life EV batteries in the world. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1949,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1949/daimler\_mobilityhouse.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1949/thumb\_daimler\_mobilityhouse.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1949/partner\_daimler\_mobilityhouse.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"TenneT","latitude":51.61662,"longitude":7.46635,"master\_project\_id":null,"name":"Daimler 2nd Life Storage - The Mobility House","om\_contractor":"","organization":"","owner\_1":"Joint Venture: Daimler AG, GETEC Energie, The Mobility House","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://mobilityhouse.com/en/huge-media-response-to-the-worlds-largest-stationary-storage-made-from-used-vehicle-batteries/","primary\_reference1":"http://media.daimler.com/marsMediaSite/en/instance/ko/Worlds-largest-2nd-use-battery-storage-is-starting-up.xhtml?oid=13634457","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":13000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"North Rhine-Westphalia","status":"Operational","street\_address":"Brunnenstrasse 138","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-26T23:08:53Z","updated\_at\_by\_admin":"2016-07-01T21:42:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"44536"}},{"project":{"announcement\_on":"2022-11-09","approval\_status":1,"city":"Chino","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"kbesser@ieua.org; christineh@advmicrogrid.com; jacobm@advmicrogrid.com","contact\_info\_visible":false,"contact\_name":"Kathryn Besser; Christine Hinton; Jake Monroe","contact\_phone":"909-993-1638; 415-939-0139","contact\_state":"California","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-11-18T18:18:07Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"Inland Empire Utilities Agency, which serves around 830,000 people in California will install 4 MW / 8 MWh of advanced energy storage systems in Southern California at water-recycling facilities and pumping stations. Designed at lowering energy costs and reducing demand on the grid, the storage will integrate renewable energy in the form of solar, wind and biogas, as well as grid resources. \r\n\r\nTesla batteries will be deployed to help integrate renewable energy into California’s interdependent “water-energy nexus”. Integrating IEUA's on-site renewable energy resources will reduce its peak demand from the grid by as much as 14% and reduce total energy costs by 5%-10%. AMS will use Powerpack commercial battery systems procured from Tesla Energy.","developer":"Advanced Microgrid Solutions (AMS)","electronics\_provider":"Dynapower","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1950,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1950/IEUAwater\_Agency\_3.5MW-7MWh.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1950/thumb\_IEUAwater\_Agency\_3.5MW-7MWh.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1950/partner\_IEUAwater\_Agency\_3.5MW-7MWh.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.965929,"longitude":-117.67482,"master\_project\_id":null,"name":"Inland Empire Utilities Agency (IEUA) - AMS","om\_contractor":"","organization":"","owner\_1":"Inland Empire Utilities Agency (IEUA)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Integrating IEUA's on-site renewable energy resources will reduce its peak demand from the grid by as much as 14% and reduce total energy costs by 5%-10%. ","primary\_reference":"http://www.ieua.org/wp-content/uploads/2015/11/Press-Release-IEUA-AMS-Batteries.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"Renewables Energy Time Shift","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":4000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"6075 Kimball Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-23T22:07:11Z","updated\_at\_by\_admin":"2017-10-23T22:07:11Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Tesla Energy","zip":"91708"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Rancho Cucamonga","commissioning\_on":"2022-10-19","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Justin.Holland@EguanaTech.com","contact\_info\_visible":false,"contact\_name":"Justin Holland - CEO, Eguana Technologies, Inc","contact\_phone":"+1.416.728.7635","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-11-18T18:44:45Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"An energy storage installation has been completed at ICL Fire Retardant Production Site in Rancho Cucamonga by Eguana Technologies and Primus Power.\r\n\r\nPrimus' patented EnergyCell is a 20 kW/72 kWh zinc bromide energy storage system for distributed applications that incorporates Eguana's Bi-Direx power control system to connect to the grid and control battery charge and discharge functions. ICL anticipates that the behind-the-meter battery deployment will yield a 16% reduction to its annual operating expenses, with no impact to the facility's operations. Bromine-based batteries are ideally suited for the long-duration stationary market as a solution to help companies efficiently and effectively store electricity, allowing them to deploy power when it is needed most, which minimizes energy waste, reduces overall energy use and costs, and ensures operations can continue in the event of a power outage.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1951,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.09391,"longitude":-117.572075,"master\_project\_id":null,"name":"20 kW / 72 kWh ICL Fire Retardant Production Site - Rancho Cucamonga, CA","om\_contractor":"","organization":null,"owner\_1":"Israel Chemicals Ltd (ICL)","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Anticipated 16% reduction to annual operating expenses","primary\_reference":"http://www.marketwatch.com/story/eguana-and-primus-power-deliver-distributed-flow-battery-systems-2015-11-05-917332","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"Resiliency","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":20,"size\_kwh":3.6,"size\_kwh\_hours":3,"size\_kwh\_minutes":36.0,"state":"California","status":"Operational","street\_address":"10667 Jersey Blvd","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Flow Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-11-20T00:38:50Z","updated\_at\_by\_admin":"2015-11-19T18:22:38Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"","zip":"91730"}},{"project":{"announcement\_on":"2022-07-27","approval\_status":1,"city":"Dörverden","commissioning\_on":"2022-02-25","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"knut.fjerdingstad@statkraft.com; andreas.schweinitz@statkraft.de","contact\_info\_visible":false,"contact\_name":"Knut Fjerdingstad; Andreas Schweinitz","contact\_phone":"+47 24 06 70 00","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2015-11-18T19:37:09Z","created\_by\_id":350,"debt\_investor":"","decommissioning\_on":null,"desc":"Statkraft has constructed a 3 MW battery project at the site of the Dörverden run-of-river power plant.\r\n\r\nThe civil works lay the foundation for Statkraft’s foray into new decentralized storage technologies. The installation is comprised of three battery containers, each with 1 megawatt (MW) installed capacity. The aim of the pilot project is to deliver control reserve power to the German transmission grid. Pre-qualification by transmission system operators (TSO) to provide balancing power is expected to be completed at the same time.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1952,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1952/1952\_doverden\_starkraft.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1952/thumb\_1952\_doverden\_starkraft.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1952/partner\_1952\_doverden\_starkraft.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"TenneT","latitude":52.8469714,"longitude":9.2275543,"master\_project\_id":null,"name":"Dörverden 3 MW Battery Storage - Statkraft","om\_contractor":"","organization":"","owner\_1":"Statkraft","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.statkraft.com/media/news/News-archive/20151/launch-of-battery-project-in-germany/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":3000,"size\_kwh":1.5,"size\_kwh\_hours":1,"size\_kwh\_minutes":30.0,"state":"Lower Saxony","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-27T04:02:07Z","updated\_at\_by\_admin":"2016-06-30T22:00:20Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Statkraft","utility\_type":"","vendor\_company":"","zip":"27313"}},{"project":{"announcement\_on":"2022-11-04","approval\_status":1,"city":"Lünen","commissioning\_on":"2022-08-15","companion":"Installed 507 MW Lünen Cogeneration Coal Power Plant","construction\_on":"2022-03-31","contact\_city":"","contact\_country":"","contact\_email":"juergen.froehlich@steag.com","contact\_info\_visible":true,"contact\_name":"Dr. Jürgen Fröhlich - STEAG Press Officer","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Nidec ASI","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2015-11-19T19:45:30Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"At the Lünen site, one of the six STEAG large battery systems was installed, which are used by STEAG for the provision of primary control capacity. Each of the six plants has a capacity of 15 MW.\r\n\r\nSix large LG Chem lithium-ion battery storage units will be put into service at Steag power plants in Germany. The 100 million euro project will see 15 MW energy storage systems (ESS) installed in power stations at Herne, Lünen, Duisburg-Walsum, Bexbach, Fenne, and Weiher. Nidec ASI recently signed a contract worth over 70 million Euros with German utility STEAG for the supply of a multi system of energy storage with a total capacity of 90 MW. This system, based on Nidec ASI energy conversion solutions, will use batteries supplied by LG Chem to store electrical energy, which the utility will use to ensure the stability of Germany's electricity network.","developer":"","electronics\_provider":"Nidec ASI","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1953,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1953/lunen\_steag.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1953/thumb\_lunen\_steag.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1953/partner\_lunen\_steag.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.6104829,"longitude":7.5285074,"master\_project\_id":null,"name":"15 MW Energy Storage at Lünen Cogeneration Plant - STEAG GmbH","om\_contractor":"","organization":"","owner\_1":"STEAG GmbH","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.pv-magazine.com/news/details/beitrag/germany--first-15-mw-steag-storage-system-complete\_100025322/#axzz4EoHxvJFa","primary\_reference1":"http://www.energymatters.com.au/renewable-news/battery-storage-germany-em5190/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":15000,"size\_kwh":1.5,"size\_kwh\_hours":1,"size\_kwh\_minutes":30.0,"state":"North Rhine-Westphalia","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-26T21:51:39Z","updated\_at\_by\_admin":"2016-07-29T20:55:18Z","updated\_by":null,"updated\_by\_email":null,"utility":"STEAG GmbH","utility\_type":"","vendor\_company":"LG Chem","zip":""}},{"project":{"announcement\_on":"2022-11-09","approval\_status":1,"city":"Walsum","commissioning\_on":"2022-07-01","companion":"560 MW Duisburg-Walsum Cogeneration Coal Power Plant","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"juergen.froehlich@steag.com","contact\_info\_visible":true,"contact\_name":"Dr. Jürgen Fröhlich - STEAG Press Officer","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Nidec ASI","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2015-11-19T20:16:06Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Six large LG Chem lithium-ion battery storage units will be put into service at Steag power plants in Germany.\_x000D\_\r\nThe 100 million euro project will see 15 MW energy storage systems (ESS) installed in power stations at Herne, Lünen, Duisburg-Walsum, Bexbach, Fenne, and Weiher.\_x000D\_\r\n\_x000D\_\r\nNidec ASI recently signed a contract worth over 70 million Euros with German utility STEAG for the supply of a multi system of energy storage with a total capacity of 90 MW. This system, based on Nidec ASI energy conversion solutions, will use batteries supplied by LG Chem to store electrical energy, which the utility will use to ensure the stability of Germany's electricity network.","developer":"","electronics\_provider":"Nidec ASI","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1954,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1954/1954\_-\_WALSUM\_STEAG.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1954/thumb\_1954\_-\_WALSUM\_STEAG.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1954/partner\_1954\_-\_WALSUM\_STEAG.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.5278689,"longitude":6.7238275,"master\_project\_id":null,"name":"15 MW Energy Storage at Walsum Cogeneration Plant - STEAG GmbH","om\_contractor":"","organization":null,"owner\_1":"STEAG GmbH","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.energymatters.com.au/renewable-news/battery-storage-germany-em5190/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":15000,"size\_kwh":1.5,"size\_kwh\_hours":1,"size\_kwh\_minutes":30.0,"state":"North Rhine-Westphalia","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-11-20T00:31:47Z","updated\_at\_by\_admin":"2015-11-20T00:31:47Z","updated\_by":null,"updated\_by\_email":null,"utility":"STEAG GmbH","utility\_type":"","vendor\_company":"LG Chem","zip":""}},{"project":{"announcement\_on":"2022-11-09","approval\_status":1,"city":"Bexbach","commissioning\_on":"2022-07-01","companion":"780 MW Bexbach Coal Power Plant","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"juergen.froehlich@steag.com","contact\_info\_visible":true,"contact\_name":"Dr. Jürgen Fröhlich - STEAG Press Officer","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Nidec ASI","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2015-11-19T20:16:06Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Six large LG Chem lithium-ion battery storage units will be put into service at Steag power plants in Germany.\_x000D\_\r\nThe 100 million euro project will see 15 MW energy storage systems (ESS) installed in power stations at Herne, Lünen, Duisburg-Walsum, Bexbach, Fenne, and Weiher.\_x000D\_\r\n\_x000D\_\r\nNidec ASI recently signed a contract worth over 70 million Euros with German utility STEAG for the supply of a multi system of energy storage with a total capacity of 90 MW. This system, based on Nidec ASI energy conversion solutions, will use batteries supplied by LG Chem to store electrical energy, which the utility will use to ensure the stability of Germany's electricity network.","developer":"","electronics\_provider":"Nidec ASI","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1955,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1955/1955\_-\_BEXBACH\_STEAG.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1955/thumb\_1955\_-\_BEXBACH\_STEAG.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1955/partner\_1955\_-\_BEXBACH\_STEAG.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":49.3560225,"longitude":7.2553745,"master\_project\_id":null,"name":"15 MW Energy Storage at Bexbach Cogeneration Plant - STEAG GmbH","om\_contractor":"","organization":null,"owner\_1":"STEAG GmbH","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.energymatters.com.au/renewable-news/battery-storage-germany-em5190/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":15000,"size\_kwh":1.5,"size\_kwh\_hours":1,"size\_kwh\_minutes":30.0,"state":"Saarland","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-11-20T00:32:17Z","updated\_at\_by\_admin":"2015-11-20T00:32:17Z","updated\_by":null,"updated\_by\_email":null,"utility":"STEAG GmbH","utility\_type":"","vendor\_company":"LG Chem","zip":""}},{"project":{"announcement\_on":"2022-11-09","approval\_status":1,"city":"Volklingen-Fenne","commissioning\_on":"2022-07-01","companion":"466 MW Volklingen-Fenne Cogeneration Coal Power Plant","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"juergen.froehlich@steag.com","contact\_info\_visible":true,"contact\_name":"Dr. Jürgen Fröhlich - STEAG Press Officer","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Nidec ASI","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2015-11-19T20:16:06Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Six large LG Chem lithium-ion battery storage units will be put into service at Steag power plants in Germany.\r\nThe 100 million euro project will see 15 MW energy storage systems (ESS) installed in power stations at Herne, Lünen, Duisburg-Walsum, Bexbach, Fenne, and Weiher.\r\nNidec ASI recently signed a contract worth over 70 million Euros with German utility STEAG for the supply of a multi system of energy storage with a total capacity of 90 MW. This system, based on Nidec ASI energy conversion solutions, will use batteries supplied by LG Chem to store electrical energy, which the utility will use to ensure the stability of Germany's electricity network.","developer":"","electronics\_provider":"Nidec ASI","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1956,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1956/1955\_-\_VOLKLINGEN\_STEAG.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1956/thumb\_1955\_-\_VOLKLINGEN\_STEAG.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1956/partner\_1955\_-\_VOLKLINGEN\_STEAG.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":49.2489783,"longitude":6.8793865,"master\_project\_id":null,"name":"15 MW Energy Storage at Volklingen-Fenne Cogeneration Plant - STEAG GmbH","om\_contractor":"","organization":null,"owner\_1":"STEAG GmbH","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.energymatters.com.au/renewable-news/battery-storage-germany-em5190/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":15000,"size\_kwh":1.5,"size\_kwh\_hours":1,"size\_kwh\_minutes":30.0,"state":"Saarland","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-11-20T00:32:47Z","updated\_at\_by\_admin":"2015-11-20T00:32:47Z","updated\_by":null,"updated\_by\_email":null,"utility":"STEAG GmbH","utility\_type":"","vendor\_company":"LG Chem","zip":""}},{"project":{"announcement\_on":"2022-11-09","approval\_status":1,"city":"Weiher","commissioning\_on":"2022-07-01","companion":"724 MW Weiher Cogeneration Coal Power Plant","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"juergen.froehlich@steag.com","contact\_info\_visible":true,"contact\_name":"Dr. Jürgen Fröhlich - STEAG Press Officer","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Nidec ASI","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2015-11-19T20:16:07Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Six large LG Chem lithium-ion battery storage units will be put into service at Steag power plants in Germany.\r\nThe 100 million euro project will see 15 MW energy storage systems (ESS) installed in power stations at Herne, Lünen, Duisburg-Walsum, Bexbach, Fenne, and Weiher. \r\n\r\nNidec ASI recently signed a contract worth over 70 million Euros with German utility STEAG for the supply of a multi system of energy storage with a total capacity of 90 MW. This system, based on Nidec ASI energy conversion solutions, will use batteries supplied by LG Chem to store electrical energy, which the utility will use to ensure the stability of Germany's electricity network.","developer":"","electronics\_provider":"Nidec ASI","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1957,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1957/1957\_-\_WEIHAR\_STEAG.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1957/thumb\_1957\_-\_WEIHAR\_STEAG.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1957/partner\_1957\_-\_WEIHAR\_STEAG.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":49.2964517,"longitude":7.3470213,"master\_project\_id":null,"name":"15 MW Energy Storage at Weiher Cogeneration Plant - STEAG GmbH","om\_contractor":"","organization":null,"owner\_1":"STEAG GmbH","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.energymatters.com.au/renewable-news/battery-storage-germany-em5190/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":15000,"size\_kwh":1.5,"size\_kwh\_hours":1,"size\_kwh\_minutes":30.0,"state":"Saarland","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-12-03T17:42:00Z","updated\_at\_by\_admin":"2015-12-03T17:42:00Z","updated\_by":null,"updated\_by\_email":null,"utility":"STEAG GmbH","utility\_type":"","vendor\_company":"LG Chem","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Volklingen","commissioning\_on":"2022-02-01","companion":"Volklingen-Fenne Power Plant","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"juergen.froehlich@steag.com","contact\_info\_visible":true,"contact\_name":"Dr. Jurgen Frohlich","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2015-11-20T01:18:05Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Evonik Industries, STEAG, and other project partners put a lithium electricity storage system (LESSY) into operation at STEAG's Fenne power plant in Völklingen, Saarland. The research project is a collaborative venture between Evonik, STEAG Power Saar GmbH, Li-Tec Battery GmbH, Digatron Industrie-Elektronik GmbH, the EWE Next Energy and Power Engineering Saar institutes, and the University of Munster. The large-format energy storage system was developed under a research initiative sponsored by the German Federal Ministry of Education and Research. \r\n\r\nLESSY is based on the lithium-ion battery technology that Evonik developed specially for electro mobility. The system is designed to accommodate 4,700 lithium-ion battery cells with a storage capacity of around 700 kilowatt hours and an output of around 1 megawatt. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"German Federal Ministry of Education and Research","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1958,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1958/1\_MW\_LESSY.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1958/thumb\_1\_MW\_LESSY.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1958/partner\_1\_MW\_LESSY.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":49.2556226,"longitude":6.8588948,"master\_project\_id":null,"name":"1 MW LESSY Volklingen-Fenne Power Plant - STEAG","om\_contractor":"","organization":"STEAG GmbH","owner\_1":"STEAG GmbH","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://corporate.evonik.com/en/media/search/pages/news-details.aspx?newsid=36874","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"The University of Münster is a public university located in the city of Münster, North Rhine-Westphalia in Germany.","research\_institution":"University of Munster","research\_institution\_link":"https://www.uni-muenster.de/en/","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.7,"size\_kwh\_hours":0,"size\_kwh\_minutes":42.0,"state":"Saarland","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:31:03Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"STEAG GmbH","utility\_type":"","vendor\_company":"Evonik","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Cumberland","commissioning\_on":"2022-11-17","companion":"205 MW Cogeneration Coal-Fired Warrior Run Power Plant","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"kate.mcginnis@aes.com","contact\_info\_visible":false,"contact\_name":"Kate McGinnis","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-11-20T21:27:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"AES Energy Storage Solutions deployed a 10 MW facility at Maryland's Warrior Run facility. The system will utilize the Advancion 4, AES's newest iteration of its battery storage system. ","developer":"AES Energy Storage","electronics\_provider":"Parker Hannifin","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1959,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1959/Good-Pic-2.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1959/thumb\_Good-Pic-2.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1959/partner\_Good-Pic-2.jpg"}},"integrator\_company":"AES Energy Storage","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.5987423,"longitude":-78.7435821,"master\_project\_id":null,"name":"Warrior Run 10 MW Advancion Energy Storage - AES","om\_contractor":"","organization":"","owner\_1":"AES Corporation","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.aesenergystorage.com/2015/11/13/aes-reveals-advancion-4-with-first-commercial-deployment/","primary\_reference1":"http://aesenergystorage.com/deployments/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":10000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Maryland","status":"Operational","street\_address":"11600 Mexico Farms Road","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-27T00:34:31Z","updated\_at\_by\_admin":"2016-04-07T19:20:24Z","updated\_by":null,"updated\_by\_email":null,"utility":"AES Corporation","utility\_type":"Investor Owned","vendor\_company":"LG Chem","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Toronto","commissioning\_on":"2022-11-18","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"media@torontohydro.com; info@hydrostor.ca","contact\_info\_visible":true,"contact\_name":"Tori Gass (Media Relations Specialist)","contact\_phone":"416-903-4037","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2015-11-24T19:06:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Toronto’s Hydrostor founders Curtis VanWalleghem and Cameron Lewis unveiled their underwater compressed air energy storage (CEAS) system on November 18.\r\n\r\nThe system is located three kilometres off Toronto Island and will be used to stabilize Toronto Hydro’s grid during peak times. The energy storage system works by storing compressed air in a balloon-like structure 55 metres under Lake Ontario. When the energy is required the weight of the water is used to push the air to the surface through a pipe where an expander coverts the air back into electricity. At peak output the storage unit is capable of 660 kW, and is able to run for little more than a hour, depending on how much power is drawn.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"Federal/National","funding\_source\_3":"State/Provincial/Regional","funding\_source\_details\_1":"Hydrostor Inc.","funding\_source\_details\_2":"Sustainability Development Technology Canada","funding\_source\_details\_3":"Ontario Ministry of Economic Development and Growth","gmaps":true,"hidden":false,"id":1960,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1960/1960\_-\_CAES\_Hydrostar.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1960/thumb\_1960\_-\_CAES\_Hydrostar.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1960/partner\_1960\_-\_CAES\_Hydrostar.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":43.6289467,"longitude":-79.3944199,"master\_project\_id":null,"name":"Toronto Hydro/HydroStor 660 kW Underwater Storage","om\_contractor":"","organization":"","owner\_1":"Toronto Hydro","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.torontohydro.com/sites/electricsystem/GridInvestment/powerup/Pages/CompressedAirEnergyStorageProject.aspx","primary\_reference1":"http://www.bestmag.co.uk/tags/compressed-air-energy-storage-system-caes","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":660,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Ontario","status":"Operational","street\_address":"Toronto Island","systems\_integration":"","technology\_classification":"","technology\_type":"Compressed Air Storage","technology\_type\_l1":"Compressed Air Storage","technology\_type\_l2":"Electro-mechanical","technology\_type\_l3":"Electro-mechanical","updated\_at":"2017-12-23T17:18:14Z","updated\_at\_by\_admin":"2015-11-24T19:12:10Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Toronto Hydro","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Sydney","commissioning\_on":"2022-06-01","companion":"150 kW photovoltaic system","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"julie.w@unsw.edu.au","contact\_info\_visible":true,"contact\_name":"Julie Ward","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2015-11-24T22:58:03Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The CellCube installation has an output of 30 kW and a capacity of 130 kWh. The energy storage system has been in operation at UNSW since June 2015. In addition to research purposes, the system is used to store surplus electricity from a 150-kW photovoltaic system if it cannot be used immediately. Researchers at UNSW are looking to evaluate different performance management algorithms.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Australian Solar Flagship Programme","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1961,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1961/1961\_-\_UNSW\_CellCube.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1961/thumb\_1961\_-\_UNSW\_CellCube.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1961/partner\_1961\_-\_UNSW\_CellCube.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-33.9176726,"longitude":151.2267483,"master\_project\_id":null,"name":"30 kW / 130 kWh - University of New South Wales - Gildemeister CellCube","om\_contractor":"","organization":null,"owner\_1":"University of New South Wales","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.sunwindenergy.com/photovoltaics/gildemeister-installs-cellcube-australia","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"UNSW is one of Australia's leading research and teaching universities. ","research\_institution":"University of New South Wales","research\_institution\_link":"http://www.unsw.com/","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"Resiliency","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":30,"size\_kwh":4.33333333333333,"size\_kwh\_hours":4,"size\_kwh\_minutes":20.0,"state":"New South Wales","status":"Operational","street\_address":"Tyree Energy Technology Building","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Flow Battery","technology\_type\_l2":"Vanadium Redox Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-11-30T23:37:22Z","updated\_at\_by\_admin":"2015-11-24T22:58:59Z","updated\_by":null,"updated\_by\_email":null,"utility":"AGL Energy","utility\_type":"Investor Owned","vendor\_company":"GILDEMEISTER energy storage GmbH","zip":"2052"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Toronto","commissioning\_on":null,"companion":"","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"","contact\_email":"cueinfo@ryerson.ca","contact\_info\_visible":true,"contact\_name":"Centre for Urban Energy","contact\_phone":"416-979-5000 x2974","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":8000000.0,"cost\_OPEX":null,"country":"Canada","created\_at":"2015-11-30T23:35:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-12-01","desc":"Ryerson graduate students will have access to a research project involving a 150 kilowatt Li-ion battery situated at Dundas and Mutual streets. Research for the Ryerson Battery Energy Storage System project will commence once the battery is connected to the Toronto Hydro grid. Designed and manufactured by Electrovaya, the battery was delivered in early October 2015 and will be the object of a research project aimed at correcting problems from the city’s electricity grid. The project cost about $8 million to fund and it initially launched in 2010, starting with the development of the battery. With Electrovaya, Hydro One, Toronto Hydro and a number of other companies sponsoring the project, Ryerson was enlisted to conduct the research on the battery for one year. Once that year is over, that battery will be sent back to its manufacturers who can then decide to test it at other locations.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party RD&D","funding\_source\_2":"Private/Third Party RD&D","funding\_source\_3":"Private/Third Party RD&D","funding\_source\_details\_1":"Electrovaya","funding\_source\_details\_2":"Toronto Hydro","funding\_source\_details\_3":"Hydro One","gmaps":true,"hidden":false,"id":1962,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1962/1962\_-\_Ryerson.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1962/thumb\_1962\_-\_Ryerson.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1962/partner\_1962\_-\_Ryerson.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":43.6575548,"longitude":-79.3768288,"master\_project\_id":null,"name":"150 kW Ryerson University Energy Storage System","om\_contractor":"","organization":null,"owner\_1":"Toronto Hydro","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://theeyeopener.com/2015/11/ryerson-acquires-giant-battery-for-grad-research/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"System integration of large-scale energy storage system using lithium batteries","research\_institution":"Ryerson University","research\_institution\_link":"http://www.ryerson.ca/cue/research/sponsored-projects/integration-large-scale-lithium-battery-storage.html","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":150,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Ontario","status":"De-Commissioned","street\_address":"147 Dalhousie Street","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-12-01T22:32:39Z","updated\_at\_by\_admin":"2015-12-01T22:32:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"Toronto Hydro","utility\_type":"State/Municipal Owned","vendor\_company":"Electrovaya","zip":"M5B 2R2"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Kotzebue","commissioning\_on":"2022-09-30","companion":"2.94 MW Wind Turbines","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jim.mcdowall@saftbatteries.com","contact\_info\_visible":false,"contact\_name":"Jim McDowall","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-02T18:43:17Z","created\_by\_id":360,"debt\_investor":"","decommissioning\_on":null,"desc":"The Saft BESS provides battery storage technology designed for extreme cold environments. It is the first container system of its kind in North America to utilize the Intensium® Max+ 20M battery container, which provides 950 kWh and has the ability to operate in environments reaching ambient temperatures of -58°F, the delivered BESS also includes a 1.2 MW EssPro™ Power Conversion System and grid connect transformer, supplied by ABB. The key benefits to the Kotzebue Electric Association (KEA) microgrid will be the ability to ride through fluctuations in wind output and to time-shift excess wind energy, providing significant reductions in diesel consumption.","developer":"","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1964,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1964/saftsystem-570x322.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1964/thumb\_saftsystem-570x322.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1964/partner\_saftsystem-570x322.jpg"}},"integrator\_company":"ABB","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":66.8983333,"longitude":-162.5966666,"master\_project\_id":null,"name":"Kotzebue Electric Association - Saft","om\_contractor":"","organization":"","owner\_1":"Kotzebue Electric Association Inc","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.saftbatteries.com/case-studies/saft-li-ion-energy-storage-plays-key-role-kea%E2%80%99s-alaskan-microgrid","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2100,"size\_kwh":0.45,"size\_kwh\_hours":0,"size\_kwh\_minutes":27.0,"state":"Alaska","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T21:07:31Z","updated\_at\_by\_admin":"2016-05-17T00:36:38Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Kotzebue Electric Association Inc","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Saft","zip":"99752"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Albany","commissioning\_on":"2022-08-01","companion":"","construction\_on":null,"contact\_city":"Macon","contact\_country":"United States","contact\_email":"chammock@ahpengr.com","contact\_info\_visible":true,"contact\_name":"Chuck Hammock","contact\_phone":"4784058301","contact\_state":"Georgia","contact\_street\_address":"250 Charter Lane","contact\_zip":"31210","contractor\_1":"Andrews, Hammock & Powell ","contractor\_2":"","contractor\_3":"","cost\_CAPEX":5100000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-02T19:28:57Z","created\_by\_id":360,"debt\_investor":"","decommissioning\_on":null,"desc":"Next to the Logistics Command headquarters building is a circular field of 306 boreholes drilled 210 feet into the ground. About 1.5 miles of fiber optic cable is used to monitor the temperature in the system.\r\n\r\nThe water circulating through the pipes in the winter cools the limestone, which is like Swiss cheese and is filled with ground water. The water from the pipes in effect cools or \"charges\" the limestone and ground water, which doesn't move. That is what cools the water that circulates through the system during the summer.\r\n\r\nThen in the winter, the limestone and groundwater around the pipes remains at about 70 degrees, and that allows heating.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1965,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1965/151019-M-UF252-397.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1965/thumb\_151019-M-UF252-397.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1965/partner\_151019-M-UF252-397.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":31.5522737,"longitude":-84.0589226,"master\_project\_id":null,"name":"Borehole Thermal Energy Storage - Marine Corps Logistics Base Albany","om\_contractor":"","organization":null,"owner\_1":"Marine Corps Logistics Base Albany","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"30% reduction in heating and cooling costs, 14 year expected payback.","primary\_reference":"http://www.macon.com/news/local/article39866370.html#storylink=cpy","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Georgia","status":"Operational","street\_address":"814 Radford Blvd","systems\_integration":"","technology\_classification":"","technology\_type":"Heat Thermal Storage","technology\_type\_l1":"Heat Thermal Storage","technology\_type\_l2":"Heat Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2015-12-29T05:42:09Z","updated\_at\_by\_admin":"2015-12-29T05:42:09Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Andrews, Hammock & Powell ","zip":"31704"}},{"project":{"announcement\_on":"2022-11-01","approval\_status":1,"city":"Mayfield West","commissioning\_on":"2022-11-01","companion":"","construction\_on":null,"contact\_city":"Mayfield West","contact\_country":"Australia","contact\_email":"sam.behrens@csiro.au","contact\_info\_visible":true,"contact\_name":"Dr Sam Behrens","contact\_phone":"+61249606133","contact\_state":"NSW","contact\_street\_address":"CSIRO Energy Centre, 10 Murray Dwyer Circuit","contact\_zip":"2304","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2015-12-03T01:19:29Z","created\_by\_id":362,"debt\_investor":"","decommissioning\_on":null,"desc":"CSIRO operates a Stored Energy Integration Facility (SEIF) at the CSIRO's Energy Centre located in Mayfield West, NSW 2304 Australia. This energy storage system was developed to provide an applied research platform for commercial scale energy shifting, smoothing and demand management of electrical bus loads connected to the grid. The SEIF is designed to operate in simultaneous multimode scenarios providing bulk energy charge / discharge, such as peak shaving and peak/off-peak time shifting, as well as fast response to transients for ramp rate control. The control software comprises of a modular design that enables changes in configuration and variable inputs for continued intelligent algorithm development for applications such as forecasting for renewable intermittency mitigation, and storage efficiency maximisation. This system is currently under expansion to incorporate additional energy storage technologies including lithium-ion batteries.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1966,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1966/IMG\_2262.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1966/thumb\_IMG\_2262.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1966/partner\_IMG\_2262.JPG"}},"integrator\_company":"CSIRO","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-32.884454,"longitude":151.728559,"master\_project\_id":null,"name":"Stored Energy Integration Facility (SEIF)","om\_contractor":"","organization":"CSIRO","owner\_1":"CSIRO","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"675kWh @ 150kW","primary\_reference":"http://www.csiro.au/en/Research/EF/Areas/Electricity-grids-and-systems/REIF","primary\_reference1":"https://foresternetwork.com/daily/energy/building-envelope/20-pacifica-irvine-co-ams-hybrid-electric-building/","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"CSIRO","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"Renewables Energy Time Shift","service\_use\_case\_11":"Voltage Support","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Bill Management with Renewables","service\_use\_case\_4":"Electric Energy Time Shift","service\_use\_case\_5":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_6":"Load Following (Tertiary Balancing)","service\_use\_case\_7":"On-Site Power","service\_use\_case\_8":"Onsite Renewable Generation Shifting","service\_use\_case\_9":"Ramping ","siting":"Secondary Distribution","size\_kw":150,"size\_kwh":4.5,"size\_kwh\_hours":4,"size\_kwh\_minutes":30.0,"state":"New South Wales","status":"Operational","street\_address":"CSIRO Energy Centre, 10 Murray Dwyer Circuit","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-17T05:38:46Z","updated\_at\_by\_admin":"2015-12-29T05:43:36Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":"2304"}},{"project":{"announcement\_on":"2021-12-11","approval\_status":1,"city":"TBD","commissioning\_on":"2021-12-31","companion":"","construction\_on":"2022-07-01","contact\_city":"","contact\_country":"","contact\_email":"paul.wormser@gmail.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2015-12-14T19:15:58Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":" SunEdison signed a 10-year agreement with Ontario's Independent Electricity System Operator to supply 5 megawatts—20 megawatt-hours—of battery storage to the province. The Ontario IESO works at the heart of Ontario's power system, and is responsible for making sure everyone in the province gets the electricity they need, when they need it. In addition to leveraging the battery's storage capability, the IESO intends to use data from this energy storage project to analyze how storage can be used to smooth the power flow from wind and solar, defer expensive system upgrades, and ultimately shape the future of its grid. This project is SunEdison's first commercial large scale grid-connected energy storage project, and is one of the first commercial applications of flow batteries in Canada.","developer":"SunEdison","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1967,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":51.253775,"longitude":-85.3232139,"master\_project\_id":null,"name":"5 MW / 20 MWh - Ontario IESO - SunEdison / Imergy Flow Battery","om\_contractor":"","organization":null,"owner\_1":"Ontario IESO","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.prnewswire.com/news-releases/ontario-ieso-contracts-for-large-scale-flow-battery-storage-with-sunedison-300191035.html","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":5000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Ontario","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Flow Battery","technology\_type\_l2":"Vanadium Redox Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-12-17T01:29:11Z","updated\_at\_by\_admin":"2015-12-17T01:29:11Z","updated\_by":null,"updated\_by\_email":null,"utility":"Ontario IESO","utility\_type":"","vendor\_company":"Imergy","zip":""}},{"project":{"announcement\_on":"2021-12-09","approval\_status":1,"city":"TBD","commissioning\_on":null,"companion":"Community-Scale Solar PV","construction\_on":"2022-01-31","contact\_city":"","contact\_country":"","contact\_email":"brent.oconnor@redflow.com; mio.nakatsuji@redflow.com","contact\_info\_visible":false,"contact\_name":"Brent O'Connor; Mio Nakatsuji","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2015-12-14T19:48:53Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Ergon Energy will establish an on-grid demonstration of a RedFlow energy storage system integrated with community-scale solar PV. The system will comprise 48 RedFlow zinc-bromide flow batteries (ZBM) in a containerised large-scale battery solution (LSB) producing 100 kW and 480 kWh of energy matched to an ABB PCS100 inverter. Ergon supplies electricity to over 733,000 customers across a vast operating area of over 1 million square kilometres, which is about 97% of the state of Queensland. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1968,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1968/Redflow\_LSB\_open\_W.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1968/thumb\_Redflow\_LSB\_open\_W.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1968/partner\_Redflow\_LSB\_open\_W.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-20.9175738,"longitude":142.7027956,"master\_project\_id":null,"name":"100 kW / 480 kWh - Ergon Energy - RedFlow","om\_contractor":"","organization":null,"owner\_1":"Ergon Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.proactiveinvestors.com.au/companies/news/66073/redflow-signs-energy-storage-deal-with-ergon-energy-66073.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":4.8,"size\_kwh\_hours":4,"size\_kwh\_minutes":48.0,"state":"Queensland","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Bromine Flow Battery","technology\_type\_l1":"Flow Battery","technology\_type\_l2":"Zinc Bromine Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-01-20T03:41:49Z","updated\_at\_by\_admin":"2016-01-20T03:41:49Z","updated\_by":null,"updated\_by\_email":null,"utility":"Ergon Energy","utility\_type":"State/Municipal Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Rhode","commissioning\_on":"2022-03-02","companion":"320 kW Beacon Power Flywheels","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"inouye@hitachi-chemical.com","contact\_info\_visible":false,"contact\_name":"Larry Inouye","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Ireland","created\_at":"2015-12-14T20:28:09Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Rhode hybrid demo project comprises of two Beacon Power 160 kW flywheels and Hitachi Chemical valve regulated lead acid batteries of up to 240 kW. The plant will have a maximum import capacity of 400 kVA and maximum export capacity of 422 kVA when completed. The flywheel system, with very high cycling ability, can rapidly absorb short-term excess grid energy and generate energy as needed by grid operators. Batteries can provide energy over longer durations but have more limited cycling capabilities. The hybrid flywheel will assist in disruption mitigation, during times of unexpected demand or sudden changes in energy supply/demand. After the completion of construction, the plant will enter a test operation phase from February 2016. The Schwungrad Energie plant will be the first field test of a hybrid-flywheel energy storage system in Europe.","developer":"","electronics\_provider":"Yokogawa Electric Corporation","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1969,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1969/160322\_01.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1969/thumb\_160322\_01.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1969/partner\_160322\_01.jpg"}},"integrator\_company":"Yokogawa Electric Corporation","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":53.3499888,"longitude":-7.1989629,"master\_project\_id":null,"name":"Hitachi Chemical Rhode Hybrid Demo Project ","om\_contractor":"","organization":"Hitachi Chemical","owner\_1":"ESB Networks Ltc","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.hitachi-chem.co.jp/japanese/information/2016/n\_160322v7g.html","primary\_reference1":"http://www.powerengineeringint.com/articles/2015/12/first-flywheel-hybrid-energy-storage-plant-in-europe-is-opened.html","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"Department of Physics & Energy","research\_institution":"University of Limerick","research\_institution\_link":"http://www.energy.ul.ie/","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":240,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Offaly","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Valve Regulated Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Valve Regulated Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-03T07:06:47Z","updated\_at\_by\_admin":"2016-05-11T00:14:51Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"ESB Networks Ltd","utility\_type":"State/Municipal Owned","vendor\_company":"Hitachi Chemical","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Le Diamant","commissioning\_on":"2022-10-20","companion":"Solar Farm","construction\_on":null,"contact\_city":"Bahie-Mahault","contact\_country":"France","contact\_email":"m.roch@alineasolar.eu","contact\_info\_visible":true,"contact\_name":"Mathieu Roch","contact\_phone":"(+34) 671 548 081","contact\_state":"Guadeloupe","contact\_street\_address":"Imm. La Palmeraie, ZAC de Moudong","contact\_zip":"97122","contractor\_1":"Sunzil","contractor\_2":"N/A","contractor\_3":"N/A","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Martinique","created\_at":"2015-12-16T09:02:28Z","created\_by\_id":359,"debt\_investor":"N/A","decommissioning\_on":null,"desc":"THE DIAMANT PV PLANT & STORAGE PROJECT will combine the\r\noutput of a solar PV farm with a Intensium Max+ 20E energy\r\nstorage unit to inject energy into the grid at a constant power\r\nlimited to 40 percent of the rated PV power. This will\r\nestablish solar PV as a predictable and reliable part of the\r\nisland’s energy mix, with no need for additional backup\r\ngeneration to compensate for the intermittent nature of\r\nrenewable energy sources.\r\n\r\nThe 2 MWh energy storage system will comprise 2 Saft\r\nIntensium® Max+ 20E containers. Each container houses\r\n17 racks of Saft’s Synerion® energy storage modules,\r\nbattery management, thermal management and safety\r\nmanagement systems.","developer":"Alinea Solar France SARL","electronics\_provider":"Ingeteam","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1970,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1970/1970\_alinea.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1970/thumb\_1970\_alinea.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1970/partner\_1970\_alinea.jpg"}},"integrator\_company":"Ingeteam","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":14.4887388,"longitude":-61.0083997,"master\_project\_id":null,"name":"Diamant PV Plant & Energy Storage","om\_contractor":"Alinea Solar France SARL","organization":"","owner\_1":"MADINERGIE, SARL","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.alineasolar.com/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":2472,"size\_kwh":0.8,"size\_kwh\_hours":0,"size\_kwh\_minutes":48.0,"state":"Martinique","status":"Operational","street\_address":"Mare Poirier","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T18:38:34Z","updated\_at\_by\_admin":"2016-03-08T02:45:54Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Private Investor","utility\_type":"","vendor\_company":"Saft SA","zip":"97223"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Warwick","commissioning\_on":null,"companion":"72kW dual-axis tracker solar PV farm","construction\_on":"2022-09-15","contact\_city":"","contact\_country":"","contact\_email":"simpliphi@technicacommunications.com","contact\_info\_visible":true,"contact\_name":"Lisa Ann Pinkerton","contact\_phone":"408-806-9626","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-16T21:14:07Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The smart home’s clean energy system combines a 72 kW dual-axis tracker solar PV farm with a 163 kWh bank of SimpliPhi’s proven lithium ferrous phosphate (LFP) batteries so that the home feeds excess power back to the grid and rarely relies on the grid or back-up generator. The energy dense storage system can quickly charge and discharge with 98% efficiency. Plus, it is very compact as it does not require extra space for ventilation or expensive heat mitigation equipment often necessary with other solutions. SimpliPhi batteries can achieve these metrics because they combine LFP chemistry with proprietary architecture and power electronics.\r\n\r\nThe 48 SimpliPhi Power OES 3.4kW LFP batteries are arranged in six banks of eight batteries each. They are cabled in parallel to ensure equal flow of current to all the batteries. That also makes them easily scalable as the home’s energy needs evolve.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1971,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1971/simpliPhiNYhome.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1971/thumb\_simpliPhiNYhome.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1971/partner\_simpliPhiNYhome.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":41.256483,"longitude":-74.3598755,"master\_project\_id":null,"name":"Rural New York Smart Home - Lotus Energy / SimpliPhi","om\_contractor":"","organization":null,"owner\_1":"Private Owner","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.solarnovus.com/grid-tied-solar-home-adds-energy-storage-system\_N9566.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":20,"size\_kwh":8.16666666666667,"size\_kwh\_hours":8,"size\_kwh\_minutes":10.0,"state":"New York","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium Iron Phosphate Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-13T18:47:33Z","updated\_at\_by\_admin":"2016-06-13T18:47:33Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-16","approval\_status":1,"city":"Humacao","commissioning\_on":null,"companion":"40 MW solar farm operating at 1000Vdc","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"elizabeth.decastro@schneider-electric.com ","contact\_info\_visible":true,"contact\_name":"Elizabeth deCastro","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-16T21:47:52Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This project in Puerto Rico is located in an area that has a weak grid with high renewable energy penetration. The goal of installing an energy storage solution is to allow a higher penetration of intermittent renewable energy sources without compromising the grid stability. The installation will be for a 40 MW PV power plant including 27 of Schneider Electric’s PV Box ST (1.36 MW) and 9 of the ES Box ST (2 MW), along with a 19 MWac Li-ion battery storage. The energy storage applications for Puerto Rico project include sub-second frequency regulation, voltage regulation, and power ramping to smooth active power injection during rapid PV power fluctuations","developer":"","electronics\_provider":"Schneider Electric","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1972,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Fonroche","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":25.8482695,"longitude":-97.532637,"master\_project\_id":null,"name":"20 MW - Puerto Rico - Fonroche / Schneider Electric","om\_contractor":"","organization":null,"owner\_1":"Puerto Rico Electric Power Authority (PREPA)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www2.schneider-electric.com/sites/corporate/en/products-services/solar/News/viewer-news.page?c\_filepath=/templatedata/Content/News/data/en/shared/solar/general\_information/2013/10/20131021\_schneider\_electric\_and\_fonroche\_partner\_on\_40\_mw\_solar\_field\_in\_puerto.xml","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Ramping ","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":20,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Puerto Rico","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-12-16T22:35:43Z","updated\_at\_by\_admin":"2015-12-16T22:35:43Z","updated\_by":null,"updated\_by\_email":null,"utility":"Puerto Rico Electric Power Authority (PREPA)","utility\_type":"State/Municipal Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Birmingham","commissioning\_on":"2021-12-11","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"k.h.chapple@bham.ac.uk","contact\_info\_visible":true,"contact\_name":"Kate Chapple - Media Relations Manager (Science & Technology)","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2015-12-16T22:16:40Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The University of Birmingham’s cryogenic energy storage (CES) pilot facility is operational. A project of the Birmingham Energy Institute, it’s the UK’s first dedicated research facility for energy storage using cryogenic liquids. The technology is also sometimes referred to as Liquid Air Energy Storage (LAES).\r\n\r\nA CES system uses renewables inputs such as solar power or wind energy and/or off-peak electricity to liquefy air; which is drawn from the plant’s immediate surroundings. The cryogenic liquid is stored at an incredibly low temperatures; below -190C. 700 litres of ambient air becomes 1 litre of liquid air after this process. When electricity is needed, the liquid is pumped to a high pressure (150 bar), vapourised into a gas, and then superheated using heat and waste heat if available. From there, it goes through an expansion process in a turbine to generate electricity.\r\n\r\nThis project was originally the Highview Pilot Plant and was relocated to the University of Birmingham’s Centre for Cryogenic Energy Storage. The pilot project was operated for four years before being donated to the University and Re-Commissioned at its new location on December 11, 2015.","developer":"","electronics\_provider":"Siemens, ABB","energy\_management\_software\_provider":"","funding\_amount\_1":1760000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"UK Department of Energy and Climate Change (DECC) - Smart Grid Demonstration Capital Grant Programme","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1973,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1973/UofB\_cryo.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1973/thumb\_UofB\_cryo.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1973/partner\_UofB\_cryo.jpg"}},"integrator\_company":"Highview Power Storage","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":52.4608009,"longitude":-1.914995,"master\_project\_id":null,"name":"University of Birmingham Cryogenic Energy Storage (CES) Pilot","om\_contractor":"","organization":"University of Birmingham","owner\_1":"University of Birmingham","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.energymatters.com.au/renewable-news/cryogenic-energy-storage-em5250/","primary\_reference1":"http://www.highview-power.com/liquid-air-energy-storage-laes-pilot-plant-july-2011-november-2014/","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"The Birmingham Centre for Cryogenic Energy Storage (BCCES) is the first in the UK to have a research facility for energy storage using cryogenic liquids, comprising new laboratories, state of the art equipment, and a major demonstration plant.","research\_institution":"University of Birmingham Centre for Cryogenic Energy Storage (BCCES); University of Leeds + Queen Mary University of London","research\_institution\_link":"http://www.birmingham.ac.uk/research/activity/energy/research/centre-energy-storage/cryogenic-energy-storage/index.aspx","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":350,"size\_kwh":7.0,"size\_kwh\_hours":7,"size\_kwh\_minutes":0.0,"state":"West Midlands","status":"Operational","street\_address":"Edgbaston","systems\_integration":"","technology\_classification":"","technology\_type":"Liquid Air Energy Storage","technology\_type\_l1":"Compressed Air Storage","technology\_type\_l2":"Electro-mechanical","technology\_type\_l3":"Electro-mechanical","updated\_at":"2018-01-06T06:25:11Z","updated\_at\_by\_admin":"2016-07-21T21:53:58Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"SSE (Scottish and Southern Energy)","utility\_type":"","vendor\_company":"Highview Power Storage","zip":"B15 2TT"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Wokingham","commissioning\_on":"2022-10-15","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@redtenergy.com","contact\_info\_visible":true,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2015-12-16T22:56:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"redT storage system (Jabil manufactured) installed at their Wokingham development centre. This is a 40 kWh storage system and will be connected to PV generation.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1974,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1974/redT\_30kwh-products.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1974/thumb\_redT\_30kwh-products.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1974/partner\_redT\_30kwh-products.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.410457,"longitude":-0.833861,"master\_project\_id":null,"name":"5 kW / 40 kWh - redT Wokingham Development Facility","om\_contractor":"","organization":null,"owner\_1":"redT Energy Storage","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.redtenergy.com/blog/redt-first-manufactured-production-system-delivered","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":5,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Berkshire","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Flow Battery","technology\_type\_l2":"Vanadium Redox Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-12-17T01:46:28Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-12-02","approval\_status":2,"city":"Fresno","commissioning\_on":"2022-05-01","companion":"","construction\_on":null,"contact\_city":"Union City","contact\_country":"United States","contact\_email":"ed@amberkinetics.com; mstout@amberkinetics.com","contact\_info\_visible":false,"contact\_name":"Ed Chiao; Mark Stout","contact\_phone":"","contact\_state":"CA","contact\_street\_address":"32920 Alvarado Niles Road, Suite 250","contact\_zip":"94587","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-16T23:27:32Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"As part of PG&E's 75 MW Procurement announced December 2, 2022 - Amber Kinetics unveiled a four-hour duration flywheel system, one it says combines the efficiency and flexibility of an electrochemical battery with the durability and lifespan of a simple mechanical device. Amber Kinetics won a 20-megawatt, 80-megawatt-hour contract with utility Pacific Gas & Electric for a 20 year energy storage agreement. The core system is a 25-kilowatt-hour flywheel, capable of charging and discharging for more than one duty cycle per day. Amber Kinetics promises “a 30-year life, with 30,000 full charge-discharge cycles, and no degradation.” ","developer":"Amber Kinetics","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1975,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1975/Amber\_Kinetics\_Energy\_Block\_rendering.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1975/thumb\_Amber\_Kinetics\_Energy\_Block\_rendering.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1975/partner\_Amber\_Kinetics\_Energy\_Block\_rendering.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":36.6783938,"longitude":-119.9277947,"master\_project\_id":null,"name":"20 MW / 80 MWh - Energy Nuevo - Amber Kinetics","om\_contractor":"","organization":null,"owner\_1":"Amber Kinetics is 100% owner of Energy Nuevo Storage Farm, LLC","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Flywheel performance data publication pending","primary\_reference":"http://amberkinetics.com/announces-game-changing-energy-storage-contract-w-pge/","primary\_reference1":null,"projected\_lifetime":"30.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"Transmission Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":20000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2016-01-25T22:45:23Z","updated\_at\_by\_admin":"2016-01-25T22:45:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Amber Kinetics","zip":"93706"}},{"project":{"announcement\_on":"2022-12-02","approval\_status":1,"city":"Sebastapol","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"hluna@hecateenergy.com","contact\_info\_visible":true,"contact\_name":"Harrison Luna","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-16T23:54:34Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"PG&E 75 MW Energy Storage Procurement announced December 2, 2022 - 10-megawatt battery from Hecate Energy to support PG&E’s Molino substation near Sebastopol.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1976,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1976/PGE\_75mwStorage\_List.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1976/thumb\_PGE\_75mwStorage\_List.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1976/partner\_PGE\_75mwStorage\_List.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":38.4259473,"longitude":-122.8320595,"master\_project\_id":null,"name":"10 MW - PG&E Molino Substation- Hecate Energy","om\_contractor":"","organization":null,"owner\_1":"Pacific Gas and Electric (PG&E)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.greentechmedia.com/articles/read/pges-75mw-energy-storage-procurement-to-test-flywheels-zinc-air-batteries","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"1980 High School Road","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-12-17T01:47:09Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"","zip":"95472"}},{"project":{"announcement\_on":"2022-12-02","approval\_status":1,"city":"Livermore","commissioning\_on":null,"companion":"NextEra Golden Hills wind farm","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"michael.toomey@nexteraenergy.com; Michael.Dowling@fpl.com","contact\_info\_visible":false,"contact\_name":"Mike Toomey; Michael Dowling","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-17T00:22:17Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"They include a 30-megawatt system from NextEra Energy at its Golden Hills wind farm near Livermore.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1977,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1977/PGE\_75mwStorage\_List.png","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/1977/thumb\_PGE\_75mwStorage\_List.png"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/1977/partner\_PGE\_75mwStorage\_List.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.6818745,"longitude":-121.7680088,"master\_project\_id":null,"name":"Golden Hills - 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Convergent CEO Johannes Rittershausen said in a Thursday interview. The project will be rated at 40 megawatt-hours, or four hours of storage capacity, which allows it to meet the utility’s resource adequacy requirements, he said. Convergent will own and operate the project under an energy storage agreement with PG&E, akin to a power-purchase agreement from a generator, he said.\r\n\r\nPG&E has dubbed that project “Henrietta,” referring to the substation it will be associated with, he said. That’s also near the 100-megawatt Henrietta solar farm, now being built by SunPower under a long-term power-purchase agreement with PG&E, indicating it could be used to meet some of the utility's solar-related needs as laid out in its initial request for offers (RFO). The second 3-megawatt zinc-air battery is being deployed by developer Western Grid at PG&E’s Clarksville substation near Folsom.","developer":"Convergent Power + Energy","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1978,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1978/eos.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1978/thumb\_eos.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1978/partner\_eos.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":36.0988489,"longitude":-119.8815203,"master\_project\_id":null,"name":"Kings County Energy Storage - PG&E Henrietta Substation","om\_contractor":"","organization":"","owner\_1":"Pacific Gas and Electric (PG&E)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.greentechmedia.com/articles/read/pges-75mw-energy-storage-procurement-to-test-flywheels-zinc-air-batteries","primary\_reference1":"http://www.convergentep.com/projects/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Ramping ","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Air Battery","technology\_type\_l1":"Metal Air Battery","technology\_type\_l2":"Zinc Air Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-17T01:22:39Z","updated\_at\_by\_admin":"2016-09-17T01:22:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Eos Energy Storage","zip":""}},{"project":{"announcement\_on":"2022-12-02","approval\_status":1,"city":"Folsom","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@pge.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-17T01:08:15Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The 3 MW zinc-air battery is being deployed by developer Western Grid at PG&E’s Clarksville substation near Folsom.","developer":"Western Grid Development LLC","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1979,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/1979/PGE\_75mwStorage\_List.png","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/1979/thumb\_PGE\_75mwStorage\_List.png"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/1979/partner\_PGE\_75mwStorage\_List.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":38.6779591,"longitude":-121.1760583,"master\_project\_id":null,"name":"3 MW - PG&E Clarksville Substation- Western Grid","om\_contractor":"","organization":null,"owner\_1":"Pacific Gas and Electric (PG&E)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.greentechmedia.com/articles/read/pges-75mw-energy-storage-procurement-to-test-flywheels-zinc-air-batteries","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":3000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Air Battery","technology\_type\_l1":"Metal Air Battery","technology\_type\_l2":"Zinc Air Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:47:11Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-12-02","approval\_status":1,"city":"Fresno","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"hluna@hecateenergy.com","contact\_info\_visible":false,"contact\_name":"Harrison Luna","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-17T01:21:03Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"As part of PG&E's 75 MW Energy Storage Procurement announced December 2, 2022 - A 1 MW lithium-ion battery system will be installed for distribution deferral at PG&E's Old Kearney substation in Fresno. The contract was awarded to developer Hecate Energy.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1980,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":36.6783938,"longitude":-119.9277947,"master\_project\_id":null,"name":"1 MW - PG&E Old Kearney Substation - Hecate Energy","om\_contractor":"","organization":"","owner\_1":"Pacific Gas and Electric (PG&E)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.greentechmedia.com/articles/read/pges-75mw-energy-storage-procurement-to-test-flywheels-zinc-air-batteries","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-24T01:22:32Z","updated\_at\_by\_admin":"2017-10-24T01:22:32Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"","zip":"93706"}},{"project":{"announcement\_on":"2022-12-02","approval\_status":1,"city":"Redwood Valley","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"hluna@hecateenergy.com","contact\_info\_visible":false,"contact\_name":"Harrison Luna","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-17T01:26:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"As part of PG&E's 75 MW Energy Storage procurement announced on December 2nd, 2015 - A 1 MW lithium-ion energy storage system will be installed near PG&E's Mendocino Substation. The project will be built by developer Hecate Energy.","developer":"Hecate Energy","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1981,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":39.258289,"longitude":-123.2181935,"master\_project\_id":null,"name":"PG&E Mendocino Substation 1 MW Energy Storage System - Hecate Energy","om\_contractor":"","organization":"","owner\_1":"Pacific Gas and Electric (PG&E)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.greentechmedia.com/articles/read/pges-75mw-energy-storage-procurement-to-test-flywheels-zinc-air-batteries","primary\_reference1":"http://www.hecateenergy.com/blog/pge-presents-innovative-energy-storage-agreements","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"De-Commissioned","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-04T05:59:14Z","updated\_at\_by\_admin":"2017-10-24T01:21:23Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"","zip":"95472"}},{"project":{"announcement\_on":"2022-06-02","approval\_status":1,"city":"Varennes","commissioning\_on":null,"companion":"","construction\_on":"2022-09-30","contact\_city":"Varennes","contact\_country":"Canada","contact\_email":"perreault.christian@esstalion.com","contact\_info\_visible":true,"contact\_name":"Christian Perreault","contact\_phone":"450-925-1214","contact\_state":"Quebec","contact\_street\_address":"1804 boulevard Lionel-Boulet","contact\_zip":"J3X 1S1","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2015-12-18T22:04:41Z","created\_by\_id":355,"debt\_investor":"","decommissioning\_on":null,"desc":"Esstalion Technologies, Inc. has been established by Hydro-Québec, Canada’s largest electricity producer, and Sony Corporation as a business venture to research and develop large-scale energy storage systems for power grids.\r\n\r\nEsstalion Technologies, Inc. will utilize Hydro-Québec’s operation and control technologies for electric power supplies as well as its lithium-ion battery material technology, together with Sony’s control technologies for highly safe, reliable, olivine-type lithium-ion iron phosphate rechargeable batteries and highly scalable module systems. By combining these strengths and performing the activities at a common location, the company intends to research and develop highly safe and reliable systems for large-scale applications, as well as battery material technology suitable for use within electric power systems, and explore their use in a wide variety of applications, such as meeting excess demand during peak times and integrating renewable energy sources into power grids.","developer":"","electronics\_provider":"Parker Hannifin","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1982,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Esstalion Technologies Inc.","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"TransEnergie","latitude":45.6552195,"longitude":-73.4205396,"master\_project\_id":null,"name":"Esstalion Technologies Varennes Energy Storage System ","om\_contractor":"","organization":"","owner\_1":"Hydro-Québec","owner\_2":"Sony Corporation","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":50.0,"ownership\_percentage\_2":50.0,"performance":"","primary\_reference":"http://www.esstalion.com","primary\_reference1":"http://news.hydroquebec.com/en/press-releases/799/a-first-prototype-for-esstalion-technologies-inc/","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"Technological innovation is an integral part of Hydro-Québec's core strategic orientations. For four decades, the Institut de recherche d’Hydro-Québec (IREQ) has put its expertise and energy into supporting Hydro-Québec, helping the company improve the performance of its operations, develop areas of growth and better serve its customers.","research\_institution":"IREQ","research\_institution\_link":"http://www.hydroquebec.com/innovation/en/index.html","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_11":"Voltage Support","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Load Following (Tertiary Balancing)","service\_use\_case\_6":"Microgrid Capability","service\_use\_case\_7":"Renewables Capacity Firming","service\_use\_case\_8":"Transmission Congestion Relief","service\_use\_case\_9":"Transmission Support","siting":"Primary Distribution","size\_kw":1200,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Quebec","status":"Operational","street\_address":"1804 boulevard Lionel-Boulet","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-01T07:19:43Z","updated\_at\_by\_admin":"2016-01-25T20:45:58Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Hydro-Québec","utility\_type":"Public Owned","vendor\_company":"Sony Corporation","zip":"J3X 1S1"}},{"project":{"announcement\_on":"2022-12-02","approval\_status":1,"city":"Oshawa","commissioning\_on":"2022-06-01","companion":"6-7 kW Behind-the-Meter Rooftop Solar","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"contactus@opuc.on.ca","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"905-723-4623","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2015-12-23T19:40:06Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Solar Energy Storage and Management System (SEMS) Pilot Program is the partnership between New Energy and Industrial Development Organization (NEDO) and Oshawa PUC Energy Services (OPUCES) that will bring a SEMS pilot project for approximately 30 homes in Oshawa.\r\n\r\nThe system will include a solar PV array (6-7 kW) connected behind the meter, lithium ion batteries (10 kWh) and a hybrid inverter (5.5 kW) that will control the flow of power between the PV array and the battery bank. The solar panels will be installed on the roof and battery and hybrid inverter will be installed inside the home (basement, garage etc.).","developer":"","electronics\_provider":"Tabuchi Electric","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1985,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1985/Oshawa\_Power.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/1985/thumb\_Oshawa\_Power.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1985/partner\_Oshawa\_Power.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"IESO","latitude":43.8970929,"longitude":-78.8657912,"master\_project\_id":null,"name":"Oshawa Power / Tabuchi Electric - 30 Home Solar-Plus-Storage Pilot - 5 kW / 10 kWh per home","om\_contractor":"","organization":"Oshawa Power and Utilities Corporation","owner\_1":"Oshawa Power","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.opuc.on.ca/overview/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"NEDO has two basic missions: addressing energy and global environmental problems, and enhancing industrial technology.","research\_institution":"New Energy and Industrial Development Organization (NEDO)","research\_institution\_link":"http://www.nedo.go.jp/english/index.html","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Grid-Connected Residential (Reliability)","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"Renewables Energy Time Shift","service\_use\_case\_7":"Resiliency","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":150,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Ontario","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-15T20:21:30Z","updated\_at\_by\_admin":"2016-05-12T20:37:25Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Oshawa Power and Utilities Corporation","utility\_type":"State/Municipal Owned","vendor\_company":"Tabuchi Electric","zip":""}},{"project":{"announcement\_on":"2021-12-18","approval\_status":1,"city":"Eugene","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"todd@cleanegroup.org","contact\_info\_visible":true,"contact\_name":"Todd Olinsky-Paul","contact\_phone":"802-223-2554","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-23T22:32:10Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project is one in a series of joint federal/state demonstration projects brokered by CESA’s Energy Storage Technology Advancement Partnership (ESTAP), a program funded by US DOE Office of Electricity and administered through a contract with Sandia National Laboratories. EWEB and its development partners, Powin Energy and Green Energy Corp., will receive technical support from Sandia National Laboratories and Clean Energy States Alliance (CESA).\r\n\r\nIn case of a grid outage, the EWEB project will provide “resilient backup power” to support EWEB’s Roosevelt Operation center, Blanton Heights Communications center, and the Willamette 800 Pump Station. These facilities provide critical electricity, water and communication services.\r\n\r\nAdditional components of this project will include electric vehicle charging stations and a community solar installation. The community solar operation will allow EWEB customers to buy into a PV system and receive a share of the electricity cost savings.","developer":"Green Energy Corp","electronics\_provider":"Powin Energy","energy\_management\_software\_provider":null,"funding\_amount\_1":295000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"State/Provincial/Regional Grant","funding\_source\_3":"","funding\_source\_details\_1":"US DOE Office of Electricity (US DOE-OE)","funding\_source\_details\_2":"Oregon Department of Energy (ODOE)","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1986,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Powin Energy","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":44.0520691,"longitude":-123.0867536,"master\_project\_id":null,"name":"500 kW Eugene Water & Electric Board (EWEB)","om\_contractor":"","organization":null,"owner\_1":"Eugene Water & Electric Board","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.cesa.org/assets/Uploads/CESA-PR-12.18.15.pdf","primary\_reference1":null,"projected\_lifetime":"2.0","rdd\_status":"No","research\_desc":"For more than 60 years, Sandia has delivered essential science and technology to resolve the nation's most challenging security issues.","research\_institution":"Sandia National Labs","research\_institution\_link":"http://www.sandia.gov/","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Oregon","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2015-12-23T22:32:43Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Eugene Water & Electric Board","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Powin Energy","zip":""}},{"project":{"announcement\_on":"2021-12-23","approval\_status":1,"city":"Cambridge","commissioning\_on":null,"companion":"170 kW Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jbolduc@cambridgema.gov","contact\_info\_visible":false,"contact\_name":"John Bolduc","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-23T23:12:18Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The City of Cambridge seeks to improve resiliency at the Sullivan Water Treatment Plant (which also serves as the Emergency Operations Center) through a battery storage system to complement the planned 170 kW solar PV system and other equipment to enable the system to island during an outage event. This project received $851,868 in funding from the Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative: Round 2 Project Implementation Awards.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":851868.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative: Round 2 Project Implementation Awards","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1987,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/1987/MASS\_Res\_Map.JPG","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/1987/thumb\_MASS\_Res\_Map.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/1987/partner\_MASS\_Res\_Map.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.3829173,"longitude":-71.1440328,"master\_project\_id":null,"name":"Sullivan Water Treatment Plant (Cambridge, Massachusetts)","om\_contractor":"","organization":null,"owner\_1":"City of Cambridge","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.mass.gov/eea/docs/doer/renewables/resiliency/project-implementation-application-summary-round-2.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"250 Fresh Pond Parkway","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T23:13:00Z","updated\_at\_by\_admin":"2016-04-06T23:13:00Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"02138"}},{"project":{"announcement\_on":"2022-09-25","approval\_status":0,"city":"Taunton/Berkley","commissioning\_on":null,"companion":"Solar PV (existing), Diesel Generators (existing)","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"amy.mcguire@state.ma.us","contact\_info\_visible":false,"contact\_name":"Amy McGuire","contact\_phone":"617-626-7380","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:11Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Community Microgrid including (1) Middle School - shelter (2) Emergency Services Building - Police and Fire (3) Community School - shelter (4) Municipal fueling station/pump (5) Police/fire radio repeater. Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative: Round 1 Project Implementation Awards","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":1455000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative: Round 1 Project Implementation Awards","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1988,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":41.8317418,"longitude":-71.0854325,"master\_project\_id":null,"name":"Taunton/Berkley Community Microgrid (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"Taunton/Berkley","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T21:09:29Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-09-25","approval\_status":0,"city":"Boston","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":"Boston","contact\_country":"United States","contact\_email":"joseph.larusso@boston.gov","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:11Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"(1) Shelburne Community Center - shelter (2) Roslindale Community Center - shelter (3) Tobin Community Center - shelter (4) Curtis Hall Community Center - shelter. Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative: Round 1 Project Implementation Awards","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":1320000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative: Round 1 Project Implementation Awards","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1989,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.3600825,"longitude":-71.0588801,"master\_project\_id":null,"name":"Boston Community Centers (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Boston","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T21:09:20Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-09-25","approval\_status":0,"city":"Northampton","commissioning\_on":null,"companion":"Solar PV, Diesel Generators (existing)","construction\_on":null,"contact\_city":"Northampton","contact\_country":"United States","contact\_email":"cmason@northamptonma.gov","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:11Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":" Solar and storage based islandable\r\nfire station, that incorporates\r\nexisting backup generation for\r\nfurther resiliency. Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative: Round 1 Project Implementation Awards","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":525401.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative: Round 1 Project Implementation Awards","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1990,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.3250896,"longitude":-72.6412013,"master\_project\_id":null,"name":"Northampton Fire Department HQ (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Northampton","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T21:09:11Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Medford","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":"Medford","contact\_country":"United States","contact\_email":"ahunt@medford.org","contact\_info\_visible":false,"contact\_name":"Alicia Hunt","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:12Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"(1) Medford City Hall (2) Department of Public Works (3) Andrews School - Shelter. Medford provided an extensive priortized list of critical facilities to consider resiliency. The TA support will evaluate the most viable of these and model appropriate solutions. Priorities have been made to look at public safety and community resources. Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative: Round 2 Project Implementation Awards","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":833366.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative: Round 2 Project Implementation Awards","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1994,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.4184296,"longitude":-71.1061639,"master\_project\_id":null,"name":"Medford Resiliency Project (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Medford","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:54:11Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Northampton","commissioning\_on":null,"companion":"Solar PV and CHP","construction\_on":null,"contact\_city":"Northampton","contact\_country":"United States","contact\_email":"cmason@northamptonma.gov","contact\_info\_visible":false,"contact\_name":"Chris Mason","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:12Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"(1) Smith Vocational and Agricultural High School (2) Northampton Department of Public Works (3) Cooley Dickinson Hospital. Northampton is interested in exploring the potential of a microgrid that would incorporate existing PV and biomass CHP with battery storage and potential additional natural gas CHP. Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative: Round 2 Project Implementation Awards","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":3078960.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative: Round 2 Project Implementation Awards","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1995,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.3250896,"longitude":-72.6412013,"master\_project\_id":null,"name":"Northampton Microgrid with Islandable PV (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Northampton","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:54:02Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Sterling","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"amy.mcguire@state.ma.us","contact\_info\_visible":false,"contact\_name":"Amy McGuire","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Battery storage project will deliver multiple layers of resiliency benefits to the Sterling community. It will be designed to ensure that the battery array is sized to allow for islanding of critical services within the Sterling police station and dispatch center. Second, the battery array will be used to provide real-time demand response, frequency regulation services, and off-peak to on-peak load shifting to increase the resilincy of Sterling's solar-reliant microgrid. Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative: Round 2 Project Implementation Awards","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":1463194.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1996,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.4374156,"longitude":-71.7606293,"master\_project\_id":null,"name":"Sterling Police and Communication Facility Microgrid (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Sterling","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:53:42Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Acton","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":"Acton","contact\_country":"United States","contact\_email":"dcharter@acton-ma.gov","contact\_info\_visible":false,"contact\_name":"Dean Charter","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"(1) Public Safety Building (2) Department of Public Works. The project is looking to incorporate solar PV with storage at the\r\npublic safety building and the DPW. The consulting team will also\r\nexplore whether natural gas is available at the public safety\r\nbuilding and if so, whether (small) natural gas CHP and absorption\r\nchilling would be suitable there and will focus on powering the\r\nfueling capability as the critical load at the department of public\r\nworks. Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1997,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.4850931,"longitude":-71.43284,"master\_project\_id":null,"name":"Acton Critical Facilties Resiliency (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Acton","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:53:31Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Amherst/Umass","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":"Amherst","contact\_country":"United States","contact\_email":"ciccarellos@amherstma.gov","contact\_info\_visible":false,"contact\_name":"Stephanie Ciccarello","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"(1) Wastewater treatment plant (2) Fire Station (3) Champion Center. This project is looking to enhance the existing Umass Microgrid with the goal of potentially adding three facilities to existing CHP microgrid and considering the incorporation of solar PV and storage to the system. Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1998,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.3942062,"longitude":-72.5335154,"master\_project\_id":null,"name":"Amherst/Umass Microgrid (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Amherst","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:53:21Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Boston","commissioning\_on":null,"companion":"Solar PV and CHP","construction\_on":null,"contact\_city":"Boston","contact\_country":"United States","contact\_email":"joseph.larusso@boston.gov","contact\_info\_visible":false,"contact\_name":"Joe Larusso","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Technical assistance and analysis of converting an existing CHP system at Madison Park high School to synchronous generation that would be able to black start and island from the grid. Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":1999,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.3600825,"longitude":-71.0588801,"master\_project\_id":null,"name":"Madison Park High School Shelter - Boston (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Boston","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:53:11Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Cambridge","commissioning\_on":null,"companion":"Solar PV and CHP","construction\_on":null,"contact\_city":"Cambridge","contact\_country":"United States","contact\_email":"jbolduc@cambridgema.gov","contact\_info\_visible":false,"contact\_name":"John Bolduc","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Technical Assistance Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2000,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.3744083,"longitude":-71.1106136,"master\_project\_id":null,"name":"Cambridge Rindge and Latin School (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Cambridge","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"459 Broadway","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:52:58Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"02138"}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Lawrence","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":"Lawrence","contact\_country":"United States","contact\_email":"bpena@cityoflawrence.com","contact\_info\_visible":false,"contact\_name":"Brian Pena","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:14Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Technical assistance will explore the pssibility of solar islanding at the water treatment facility, through the addition of battery storage, inverters and the identification of critical loads. The intended outcome of the technical assistance is to augment, complement and/or remove the need for the current 1250 kW diesel backup generator. Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2001,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.6948584,"longitude":-71.1797614,"master\_project\_id":null,"name":"Lawrence Water Treatment Plant (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Lawrence","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"410 Water Street","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:52:04Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"01841"}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Leverett","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":"Leverett","contact\_country":"United States","contact\_email":"townadministrator@leverett.ma.us","contact\_info\_visible":false,"contact\_name":"Marjorie McGinnis","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:14Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"(1) Public Safety Building (2) Elementary School - Shelter. Leverett proposes to utilize this grant to help decide the best way to create a renewable back-up energy source for two critical facilities (the safety complex and the elementary school), creating better resiliency during emergency events and reducing the Town's use of fossil fuels during these events. A 15 kW solar installation has recently been installed between the buildings, which will serve the safety complex. Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2002,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.4519581,"longitude":-72.5011335,"master\_project\_id":null,"name":"Leverett Resiliency Project (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Leverett","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:51:48Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Falmouth","commissioning\_on":null,"companion":"Solar PV, Wind, and CHP","construction\_on":null,"contact\_city":"Falmouth","contact\_country":"United States","contact\_email":"msanchez@falmouth.k12.ma.us","contact\_info\_visible":false,"contact\_name":"Marcel Sanchez","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:14Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The goals of the project are to determine the best battery storage unit and interface with renewable energy system available that can provide back‐up power for the shelter and also provide voltage regulation for the incoming power to the school, as there are frequent power surges and irregularities that impact the equipment at the school. Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2003,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":41.5900431,"longitude":-70.6075906,"master\_project\_id":null,"name":"Falmouth High School (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Falmouth","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"874 Gifford St","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:51:35Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"02536"}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Lincoln/Wayland","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":"Lincoln/Wayland","contact\_country":"United States","contact\_email":"cpeterson@mapc.org","contact\_info\_visible":false,"contact\_name":"Cammy Peterson","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:14Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This MAPC regional resiliency project comprised of Wayland and Lincoln – neighboring communities that have worked together often – invites the possibility of greater shared services, both in public safety resiliency and in community sheltering. MAPC seeks to gain technical assistance for the exploration of islanding capability, advanced switches, and/or battery storage in the planned solar installations at these critical facilities.Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2004,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.4217357,"longitude":-71.2992993,"master\_project\_id":null,"name":"Lincoln/Wayland-MAPC TA Project (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"Lincoln/Wayland MAPC","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:51:24Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Melrose","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":"Melrose","contact\_country":"United States","contact\_email":"mgrover@cityofmelrose.org","contact\_info\_visible":false,"contact\_name":"Martha Grover","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:14Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"(1) Melrose City Hall (2) Main Street Fire Station (3) Memorial Hall are located in a row on Main Street in downtown Melrose. The City requests technical assistance to explore the possibility of installing a combined heat and power (CHP) system and/or a microgrid system that would energize all three facilities in the event of an extended power outage. Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2005,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.4584292,"longitude":-71.0661633,"master\_project\_id":null,"name":"Melrose Microgrid TA Project (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Melrose","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:51:11Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"New Bedford","commissioning\_on":null,"companion":"Solar PV and CHP","construction\_on":null,"contact\_city":"New Bedford","contact\_country":"United States","contact\_email":"scott.durkee@newbedford-ma.gov","contact\_info\_visible":false,"contact\_name":"Scott Durkee","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:15Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"(1) High School - Shelter (2) City Yard (3) Hillman Complex. Technical assistance through this program constitutes a first step in long term community microgrid plan. This step involves establishing detailed designs and cost proposals for on-site generation and associated grid components for selected critical facilties and verifying feasibility and content of the phased roadmap for the city and community facilities. Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2006,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":41.6362152,"longitude":-70.934205,"master\_project\_id":null,"name":"New Bedford Techincal Assistance Project (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of New Bedford","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:51:01Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Newton","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":"Newton","contact\_country":"United States","contact\_email":"rgarrity@newtonma.gov","contact\_info\_visible":false,"contact\_name":"Rob Garrity","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:15Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"(1) Waban comms Facility (2) City Hall. Newton is seeking technical assistance to determine the proper sizing for the battery system and appropriate control technologies, as well as the optimal solar array size for a generation unit at the emergency communications site adjacent to the Waban Hill reservoir. A second project would consist of creating an islandable system at the Newton City Hall, allowing the building to continue to provide services in the case of prolonged power outages. Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2007,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.3370413,"longitude":-71.2092214,"master\_project\_id":null,"name":"Newton Technical Assistance Project (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Newton","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:50:49Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Sandwich","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":"Sandwich","contact\_country":"United States","contact\_email":"bgall3473@aol.com","contact\_info\_visible":false,"contact\_name":"Brian Gallant","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:15Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"(1) High School - Shelter (2) Emergency Operations Center. Sandwich is considering energy resiliency at its high school (shelter) and human services building (emergency operations center). Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2008,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":41.7589615,"longitude":-70.4939317,"master\_project\_id":null,"name":"Sandwich Technical Assistance Project (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Sandwich","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:50:16Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Saugus","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":"Saugus","contact\_country":"United States","contact\_email":"rluongo@saugus-ma.gov","contact\_info\_visible":false,"contact\_name":"Robert Luongo","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:15Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"(1) Senior Center - Shelter (2) Public Safety Building. Saugus is requesting technical assistance support to look at clean energy generation to support the public safety building and senior center (shelter). Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2009,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.4651421,"longitude":-71.0110473,"master\_project\_id":null,"name":"Saugus Technical Assistance Project (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Saugus","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:50:00Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Scituate","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":"Scituate","contact\_country":"United States","contact\_email":"abangert@scituatema.gov","contact\_info\_visible":false,"contact\_name":"Albert Bangert","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:15Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Scituate is looking to add energy resiliency to the town's new emergency management complex to be constrcuted on Chief Justice Cushing Highway. This facility will combine police and fire services, join emergency 911 dispatch response, and an emergency command center. Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2010,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.195929,"longitude":-70.7258633,"master\_project\_id":null,"name":"Scituate Technical Assistance Project (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Scituate","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:49:48Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Shirley","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":"Shirley","contact\_country":"United States","contact\_email":"bgd123@comcast.net","contact\_info\_visible":false,"contact\_name":"Bryan Dumont","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:16Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Shirley is considering energy resiliency measures for its police statoin. Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2011,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.5437035,"longitude":-71.6495176,"master\_project\_id":null,"name":"Shirley Police Station Technical Assistance Project (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"City of Shirley","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:49:37Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-24","approval\_status":0,"city":"Somerville","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":"Somerville","contact\_country":"United States","contact\_email":"ogarcia@somervillema.gov","contact\_info\_visible":false,"contact\_name":"Oliver Sellers-Garcia","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-24T23:56:16Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"(1) Public Safety Building (2) Early Childhood Center (3) Department of Public Works. Somerville’s intended outcomes from technical assistance are: 1) A tested process for identifying, evaluating and prioritizing resiliency strategies with mitigation benefits, singly and in combination, as the City prepares to improve all of its critical buildings; 2) Readiness to apply to DOER for implementation project funding for the three critical pilot buildings as the next step in using these three buildings as test cases for increasing climate resilience in all Somerville buildings; and 3) A much clearer understanding of feasibility, scope and timing for implementing adaptation and mitigation strategies city-wide.Funding provided by Massachusetts Department of Energy Resources - Community Clean Energy Resiliency Initiative","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2012,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.3875968,"longitude":-71.0994968,"master\_project\_id":null,"name":"Somerville Department of Public Works Technical Assistance","om\_contractor":"","organization":null,"owner\_1":"City of Somerville","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/resiliency/resiliency-initiative.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:49:04Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Chicago","commissioning\_on":"2022-11-01","companion":"","construction\_on":null,"contact\_city":"Milwaukee","contact\_country":"United States","contact\_email":"Jeremy.M.Niederjohn@jci.com","contact\_info\_visible":false,"contact\_name":"Jeremy Niederjohn (Director of Market Development)","contact\_phone":"414-534-7530","contact\_state":"Wisconsin","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2015-12-30T19:53:20Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Merchandise Mart is a massive commercial space, spanning two city blocks along the Chicago River and offering some 4.2 million square feet of floor space. As expected, its energy consumption is also enormous, but the building has long been a leader in efficiency. And recently, the Mart took an even bigger step forward by unveiling an innovative battery storage unit that will help balance the electric grid – and earn money while doing it.\r\n\r\nEfficiency efforts at Merchandise Mart began in the 1980s with the installation of an ice-storage cooling system that freezes tons of water overnight when cooling needs are minimal, allowing the building to shift power consumption to off-peak periods, save money, and reduce pollution.","developer":"EDF Climate Corps","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2014,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2014/Merchandise\_Mart\_Johnson\_Controls.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2014/thumb\_Merchandise\_Mart\_Johnson\_Controls.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2014/partner\_Merchandise\_Mart\_Johnson\_Controls.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"PJM","latitude":41.8885185,"longitude":-87.6354802,"master\_project\_id":"","name":"Merchandise Mart Energy Storage - Johnson Controls","om\_contractor":"","organization":null,"owner\_1":"Vornado Realty Trust","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://blogs.edf.org/energyexchange/2015/11/23/how-one-of-chicagos-most-iconic-landmarks-is-saving-money-through-energy-storage-2/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Illinois","status":"Operational","street\_address":"222 W Merchandise Mart Plaza","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-02-12T18:47:48Z","updated\_at\_by\_admin":"2016-02-12T18:47:04Z","updated\_by":null,"updated\_by\_email":null,"utility":"ComEd","utility\_type":"Investor Owned","vendor\_company":"Johnson Controls, Inc. (JCI)","zip":"60654"}},{"project":{"announcement\_on":"2022-03-17","approval\_status":1,"city":"Perth","commissioning\_on":"2022-02-01","companion":"150 solar-equipped homes","construction\_on":null,"contact\_city":"","contact\_country":"Australia","contact\_email":"arena@arena.gov.au; research@energystoragealliance.com.au; sid.masilamani@energymadeclean.com","contact\_info\_visible":false,"contact\_name":"ARENA; AESDB; Sid Masilamani","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":6700000.0,"cost\_OPEX":null,"country":"Australia","created\_at":"2015-12-30T21:38:02Z","created\_by\_id":360,"debt\_investor":"","decommissioning\_on":null,"desc":"In February 2016 EMC delivered Western Australia’s first utility scale grid-connected battery energy storage system (0.5 MVA / 1.1 MWh), as part of a Community Battery Trial. The 1.1 MWh battery provides storage for 150 homes in the new development, offering homeowners energy storage for excess power generated from their solar PV. The project is owned by local power retailer Synergy and storage is offered under a Battery Tariff (Peak Demand Saver Plan).\r\n\r\nThe four-year $6.7 million (AUS) trial, is being partly funded by the Australian Renewable Energy Agency (ARENA); and is in collaboration with development partners Lendlease and LandCorp.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":3300000.0,"funding\_amount\_2":3400000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"State/Provincial/Regional RD&D","funding\_source\_3":"","funding\_source\_details\_1":"Australian Renewable Energy Agency","funding\_source\_details\_2":"Synergy","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2015,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2015/SYNERGY\_container.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2015/thumb\_SYNERGY\_container.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2015/partner\_SYNERGY\_container.jpg"}},"integrator\_company":"Energy Made Clean (EMC)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-31.6171563,"longitude":115.6805868,"master\_project\_id":null,"name":"Synergy / EMC Alkimos Beach Community Battery Trial","om\_contractor":"","organization":"","owner\_1":"Synergy","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.synergy.net.au/Our-energy/Store/Energy-Storage-Trial-at-Alkimos-Beach","primary\_reference1":"https://www.synergy.net.au/About-us/News-and-announcements/Media-releases/Synergy-leading-energy-storage-trial","projected\_lifetime":"4.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Bill Management with Renewables","service\_use\_case\_4":"Electric Energy Time Shift","service\_use\_case\_5":"Grid-Connected Residential (Reliability)","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":2.2,"size\_kwh\_hours":2,"size\_kwh\_minutes":12.0,"state":"Western Australia","status":"Operational","street\_address":"Alkimos","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-27T03:41:23Z","updated\_at\_by\_admin":"2016-08-18T22:26:59Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Synergy","utility\_type":"State/Municipal Owned","vendor\_company":"Energy Made Clean (EMC)","zip":"6038"}},{"project":{"announcement\_on":"2021-12-25","approval\_status":1,"city":"Napa","commissioning\_on":"2022-03-31","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"thealy@napasan.com","contact\_info\_visible":false,"contact\_name":"Tim Healy, General Manager of the Napa Sanitation District","contact\_phone":"707-258-6000, 508","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-01-04T18:50:18Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Tesla installed the $3.2 million facility using a $1.9 million Pacific, Gas and Electric grant to cover part of the expense and will pay for operations and maintenance. The district and Tesla will split energy savings estimated of $110,000 annually.\r\n\r\nTesla’s lithium ion batteries will be used to store energy produced by the district’s cogeneration plant at low cost periods, releasing it during peak price periods to support on-site operations.The system has a 2 MWh storage capacity.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":1900000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Pacific Gas & Electric Grant","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2016,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2016/Napa\_Sanitation\_District.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2016/thumb\_Napa\_Sanitation\_District.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2016/partner\_Napa\_Sanitation\_District.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":38.236511,"longitude":-122.2843376,"master\_project\_id":null,"name":"2 MWh - Napa Sanitation District - Tesla","om\_contractor":"","organization":"Napa Sanitation District","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The district and Tesla will split energy savings estimated of $110,000 annually.","primary\_reference":"http://napavalleyregister.com/news/local/napa-sanitation-plant-to-store-power-in-tesla-batteries/article\_acd83a48-cfa2-5946-921c-8974ce3bff16.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"1515 Soscol Ferry Rd","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-26T21:18:32Z","updated\_at\_by\_admin":"2016-02-11T19:49:49Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"","zip":"94558"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"DeKalb","commissioning\_on":"2022-11-01","companion":"217.5 MW Lee DeKalb Wind Energy Center","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"michael.dowling@nee.com","contact\_info\_visible":false,"contact\_name":"Michael Dowling","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Blattner Energy","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-01-07T22:42:37Z","created\_by\_id":366,"debt\_investor":"","decommissioning\_on":null,"desc":"NextEra Energy Resources’ 20 MW Frontier Battery Energy Storage System near the Lee DeKalb Wind Energy Center in Illinois went into commercial service in November 2014. This 20 MW / 10 MWh facility located in Illinois is operating in the PJM frequency regulation market. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2017,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2017/LeeDeKalb.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2017/thumb\_LeeDeKalb.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2017/partner\_LeeDeKalb.jpg"}},"integrator\_company":"Greensmith","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":41.9294736,"longitude":-88.7503647,"master\_project\_id":null,"name":"Lee DeKalb Energy Storage - NextEra","om\_contractor":"","organization":"","owner\_1":"NextEra Energy Resources, LLC","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.nexteraenergy.com/energynow/2015/0515/0515\_cover.shtml","primary\_reference1":"http://www.nexteraenergy.com/crr/clean-energy-leader/battery-energy.shtml","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":20000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Illinois","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-26T03:22:36Z","updated\_at\_by\_admin":"2016-04-05T18:38:21Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"LG Chem","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Somerset County","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"michael.dowling@nee.com","contact\_info\_visible":false,"contact\_name":"Michael Dowling","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-01-07T22:42:37Z","created\_by\_id":366,"debt\_investor":"","decommissioning\_on":null,"desc":"In 2015, NextEra Energy Resources commissioned the Meyersdale Battery Energy Storage System, an 18 MW facility located in Pennsylvania operating in the PJM frequency regulation market.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2018,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2018/Meyersdale.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2018/thumb\_Meyersdale.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2018/partner\_Meyersdale.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.022493,"longitude":-78.9288242,"master\_project\_id":null,"name":"Meyersdale Energy Storage - NextEra","om\_contractor":"","organization":"","owner\_1":"NextEra Energy Resources, LLC","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.nexteraenergy.com/energynow/2016/0216/0216\_EnergyStorage.shtml","primary\_reference1":"http://www.nexteraenergyresources.com/what/energy-storage/locations.shtml","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":18000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Pennsylvania","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-26T18:54:32Z","updated\_at\_by\_admin":"2016-04-22T20:01:58Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Somerset County","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"michael.dowling@nee.com","contact\_info\_visible":false,"contact\_name":"Michael Dowling","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-01-07T22:42:38Z","created\_by\_id":366,"debt\_investor":"","decommissioning\_on":null,"desc":"In 2015, NextEra Energy Resources commissioned the Green Mountain Battery Energy Storage System, a 10.4 MW facility located in Pennsylvania operating in the PJM frequency regulation market.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2019,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2019/Green\_Mountain.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2019/thumb\_Green\_Mountain.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2019/partner\_Green\_Mountain.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.022493,"longitude":-78.9288242,"master\_project\_id":null,"name":"Green Mountain Energy Storage - NextEra","om\_contractor":"","organization":"","owner\_1":"NextEra Energy Resources, LLC","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.nexteraenergyresources.com/what/energy-storage/locations.shtml","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10400,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Pennsylvania","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-27T00:03:51Z","updated\_at\_by\_admin":"2016-04-05T18:39:28Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"West Deptford","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"michael.dowling@nee.com","contact\_info\_visible":false,"contact\_name":"Michael Dowling","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-01-07T22:42:38Z","created\_by\_id":366,"debt\_investor":"","decommissioning\_on":null,"desc":"This project appears to be offline. 30.11.2017\r\n\r\nIn 2013, NextEra Energy Resources commissioned the Energy Storage Holdings project, a 1.8 MW facility located in New Jersey operating in the PJM frequency regulation market. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2020,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.8318378,"longitude":-75.1895576,"master\_project\_id":null,"name":"Energy Storage Holdings - NextEra","om\_contractor":"","organization":"","owner\_1":"NextEra Energy Resources, LLC","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.nexteraenergyresources.com/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1800,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"New Jersey","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-30T23:35:32Z","updated\_at\_by\_admin":"2016-04-05T18:39:58Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-05-01","approval\_status":1,"city":"Port-au-Prince","commissioning\_on":null,"companion":"110 kW Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jim.mcdowall@saftbatteries.com","contact\_info\_visible":false,"contact\_name":"Jim McDowall; Yves Marthone, COO of Genivov Group","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Haiti","created\_at":"2016-01-26T19:33:18Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Saft has delivered an advanced Lithium-ion Energy Storage System (ESS) to power lighting and Wi-Fi for the Champ de Mars, the grand public square in Port-au-Prince, Haïti. The contract with Montreal-based Geninov Group, a diversified energy and engineering technology company, was finalized in May 2015.\r\n\r\nThe Champ de Mars is the largest recreational park in Haïti. The Saft ESS, to be installed in the vicinity of the Triomphe Cultural Centre in conjunction with approximately 110 kW of solar panels, is comprised of one Intensium® Max 20E energy battery container. The configuration is designed to collect power during sunlight hours and to illuminate the entire park area at night while providing Wi-Fi coverage in the immediate vicinity.","developer":"Geninov Group","electronics\_provider":"Princeton Power Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"The World Bank","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2021,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2021/saft\_intensium.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2021/thumb\_saft\_intensium.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2021/partner\_saft\_intensium.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":18.594395,"longitude":-72.3074326,"master\_project\_id":null,"name":"Champ de Mars Triomphe Cultural Centre - Geninov Group","om\_contractor":"","organization":"Saft Batteries; Genivov Group","owner\_1":"Geninov Group","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.saftbatteries.com/press-releases/saft-lights-champ-de-mars-port-au-prince-lithium-ion-energy-storage-system","primary\_reference1":"http://geninov.com/en/works/construction-of-a-100-kwp-photovoltaic-power-plant-at-the-champs-de-mars/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Ouest","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-26T03:31:10Z","updated\_at\_by\_admin":"2016-04-22T18:58:54Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"L'Electricity D'Haiti (EDH)","utility\_type":"","vendor\_company":"Saft","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Leschapelles","commissioning\_on":"2022-10-01","companion":"230 kWp Solar PV, 2 x220 kW and 2 x 400 kW diesel generators","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"bismarck@qinous.com","contact\_info\_visible":true,"contact\_name":"Busso v. Bismarck","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Haiti","created\_at":"2016-01-26T19:55:51Z","created\_by\_id":305,"debt\_investor":"","decommissioning\_on":null,"desc":"The 131-bed Hospital Albert Schweitzer Haiti is the only 24/7 full-service hospital in the region, serving a population of more than 350,000 people. The hospital runs on diesel generators,resulting in generation costs of more than 350,000 USD per year. The main goal of the project was to minimize the hospital’s energy costs by substituting diesel power with a solar supply with PV and battery storage. The solar energy system minimizes the hospital’s future dependency on fuel supplies, and helps offset the rising cost of fuel, as a second energy source is integrated into the existing power supply and distribution system. Savings are expected to be around 250,000 USD per year.","developer":"","electronics\_provider":"Qinous GmbH","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2022,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2022/PV\_Battery\_System\_Hopital\_Albert\_Schweitzer.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2022/thumb\_PV\_Battery\_System\_Hopital\_Albert\_Schweitzer.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2022/partner\_PV\_Battery\_System\_Hopital\_Albert\_Schweitzer.jpg"}},"integrator\_company":"Qinous GmbH","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":19.104927,"longitude":-72.6949373,"master\_project\_id":null,"name":"Hôpital Albert Schweitzer","om\_contractor":"Qinous GmbH","organization":"Qinous GmbH","owner\_1":"Hospital Albert Schweitzer","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.hopitalalbertschweitzer.org/reader/stand-solarprojekt.html","primary\_reference1":"https://www.qinous.de/en/references/hospital-albert-schweitzer/","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200,"size\_kwh":1.13333333333333,"size\_kwh\_hours":1,"size\_kwh\_minutes":8.0,"state":"Leschapelles","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-05T03:50:21Z","updated\_at\_by\_admin":"2016-03-17T23:51:11Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":"2022-01-23","approval\_status":1,"city":"Toronto","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"HLuna@hecateenergy.com","contact\_info\_visible":false,"contact\_name":"Harrison Luna","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Deltro Energy Inc.","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2016-01-26T20:43:00Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Independent Electricity System Operator in the Canadian province of Ontario plans to install six energy storage systems to stabilize its grid.\r\n\r\nLeclanche SA, the Swiss company providing the technology, signed a deal with the grid operator valued at $50 million to $75 million, according to Chief Executive Officer Anil Srivastava. The combined capacity of the six systems will be 53 megawatt hours.\r\n\r\nThe contract with IESO functions as a power purchase agreement for three years, with electricity distributor Toronto Hydro Corp. taking over the agreement for an additional 12 years.","developer":"Hecate Canada Storage II, LLP","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2023,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2023/Kitchener\_1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2023/thumb\_Kitchener\_1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2023/partner\_Kitchener\_1.jpg"}},"integrator\_company":"Greensmith Energy","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"IESO","latitude":43.653226,"longitude":-79.3831843,"master\_project\_id":"---\n- '1850'\n","name":"14.8 MW / 58.8 MWh IESO Energy Storage Procurement Phase 1 - Hecate Energy (Toronto Installation)","om\_contractor":"","organization":"","owner\_1":"Hecate Canada Storage II, LLP","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.hecateenergy.com/projects/ieso-storage","primary\_reference1":"https://cleantechnica.com/2016/01/23/storage-news-leclanche-will-supply-ontario-one-worlds-largest-energy-storage-systems/","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency 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SA","zip":""}},{"project":{"announcement\_on":"2022-01-29","approval\_status":0,"city":"Dublin","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"john.wood@ecoult.com","contact\_info\_visible":false,"contact\_name":"John Wood","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Ireland","created\_at":"2016-01-29T22:03:04Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Ecoult's Ultra-Battery energy storage products is to be installed in Dublin in a smart grid testbed to integrate fast-response storage with the electricity grid.The program is being run by German renewable systems and power converter manufacturer Freqcon for its Tallaght Smart Grid Testbed, which is being used by the operated by Irish Micro Electricity Generation Association to test new battery storage technologies.\r\nThe trial is designed to show how a combination of energy storage and smart power electronics can minimize electricity distribution issues and grid instability in a micro grid.\r\nThe system being used is a single UltraMax which is about 70kWh nominal capacity at the 10-hour rate.","developer":"","electronics\_provider":" Freqcon 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","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://reneweconomy.com.au/2016/ecoult-battery-system-trialled-for-grid-support-role-in-ireland-33041","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Residential (Reliability)","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":7,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"Leinster","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Hybrid Lead-acid Battery/Electro-chemical Capacitor","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T22:15:47Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Irish Micro Electricity Generation Association","utility\_type":"Investor Owned","vendor\_company":"Ecoult","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":" Zhangbei","commissioning\_on":"2022-01-23","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Canada","contact\_email":"info@spartonres.ca","contact\_info\_visible":false,"contact\_name":"A. Lee Barker","contact\_phone":"Office: 647-344-7734 Mobile: 416-716-5762","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2016-01-30T00:37:45Z","created\_by\_id":363,"debt\_investor":"","decommissioning\_on":null,"desc":"The Zhangbei Project, jointly launched in May 2010 by the Ministry of Finance, the Ministry of Science and Technology, and the National Energy Bureau is operated by State Grid. Located approximately 180 km north of downtown Beijing near Zhangjiakou, in Hebei Province, it integrates wind power, solar power, energy storage, and smart grid transmission technologies. The energy storage equipment currently installed and being tested on site includes an 8 megawatt hour vanadium flow battery commissioned by VanSpar as well as smaller capacity lithium and lead-acid storage batteries and capacitors. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"Federal/National","funding\_source\_3":"Federal/National","funding\_source\_details\_1":"Ministry of Finance - China","funding\_source\_details\_2":"Ministry of Science and Technology - China","funding\_source\_details\_3":"National Energy Bureau - China","gmaps":true,"hidden":false,"id":2026,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2026/2026\_Sparton\_Zhangbei.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2026/thumb\_2026\_Sparton\_Zhangbei.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2026/partner\_2026\_Sparton\_Zhangbei.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":41.158557,"longitude":114.720086,"master\_project\_id":null,"name":"The Zhangbei Project - State Grid / Sparton Resources","om\_contractor":"","organization":"","owner\_1":"State Grid North China","owner\_2":"","owner\_type":"3","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://vanitec.org/latest-from-vanitec/article/sparton-banks-on-vanadium","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Hebei Province","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Flow Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T23:33:07Z","updated\_at\_by\_admin":"2016-04-05T18:28:11Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"State Grid North China","utility\_type":"State/Municipal Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Münster","commissioning\_on":"2022-04-20","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"bismarck@qinous.com","contact\_info\_visible":false,"contact\_name":"Busso v. Bismarck","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2016-01-30T11:59:32Z","created\_by\_id":305,"debt\_investor":"","decommissioning\_on":null,"desc":"The Qinous ESS 55/112 is part of the European R&amp;D project ZeEUS. The public utility Stadtwerke Münster operate an e-bus line. The buses are charged with 500 kW for about 6min. at the end of the line. The project is evaluating if energy storage could be an alternative against grid-upgrading to MV in such applications. It is supervised by the university RWTH-Aachen","developer":"","electronics\_provider":"Qinous GmbH","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2027,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2027/Qinous-Elektrospeicher-1024x763.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2027/thumb\_Qinous-Elektrospeicher-1024x763.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2027/partner\_Qinous-Elektrospeicher-1024x763.jpg"}},"integrator\_company":"Qinous GmbH","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.9401087,"longitude":7.6447365,"master\_project\_id":null,"name":"Fast-Charging e-Bus Münster","om\_contractor":"Qinous GmbH","organization":null,"owner\_1":"Stadtwerke Münster","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://aa-zoo.de/tag/qinous/","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"ZeEUS","research\_institution":"RWTH-Aachen","research\_institution\_link":"http://www.gse.rwth-aachen.de/en","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":55,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Nordreihn Westfalen","status":"Operational","street\_address":"Rösnerstraße 13","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Nickel Manganese Cobalt Battery","technology\_type\_l1":"Lithium Nickel Manganese Cobalt Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-17T00:38:01Z","updated\_at\_by\_admin":"2016-05-17T00:38:01Z","updated\_by":null,"updated\_by\_email":null,"utility":"Stadtwerke Münster","utility\_type":"State/Municipal Owned","vendor\_company":"Samsung SDI","zip":"48155 "}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Tabarre 7, Angle Rue Auguste Pierre Paul,","commissioning\_on":null,"companion":"","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"","contact\_email":"press@qinous.com","contact\_info\_visible":false,"contact\_name":"Busso v. Bismarck","contact\_phone":"+49 30 530 23 31-11","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Haiti","created\_at":"2016-01-30T12:03:07Z","created\_by\_id":305,"debt\_investor":"","decommissioning\_on":null,"desc":"PV-Battery Hybrid power plant with 650kWp and the Qinous ESS 500/448 is going to replace 50% of the annual diesel-fuel. The hospital &amp; social campus has a peak demand of 450kW.","developer":"","electronics\_provider":"Qinous GmbH","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Equity","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2028,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2028/Unbenannt.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2028/thumb\_Unbenannt.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2028/partner\_Unbenannt.png"}},"integrator\_company":"Qinous GmbH","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":18.594395,"longitude":-72.3074326,"master\_project\_id":null,"name":"Solar Smart Grid Tabarre","om\_contractor":"Qinous GmbH","organization":"Qinous GmbH","owner\_1":"nph-Deutschland e.V.","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://saintdamienhospital.nph.org/","primary\_reference1":"http://www.renewableenergyfocus.com/view/43712/clean-energy-supply-in-haiti-hospital-achieved-with-battery-system/","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Port-au-Prince","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Nickel Manganese Cobalt Battery","technology\_type\_l1":"Lithium Nickel Manganese Cobalt Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-26T21:07:08Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Saarbrücken","commissioning\_on":"2022-06-10","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"bismarck@qinous.com","contact\_info\_visible":false,"contact\_name":"Busso v. 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The system is in operation since summer 2014","developer":"not disclosed","electronics\_provider":"Qinous GmbH","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2029,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2029/IMG\_20140606\_111502.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2029/thumb\_IMG\_20140606\_111502.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2029/partner\_IMG\_20140606\_111502.jpg"}},"integrator\_company":"Qinous GmbH","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":49.2401572,"longitude":6.9969327,"master\_project\_id":null,"name":"Customer Project","om\_contractor":"Qinous GmbH","organization":null,"owner\_1":"Customer","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.qinous.com/home/","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":55,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Saarland","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T22:14:53Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Abu Dhabi","commissioning\_on":"2022-10-25","companion":"","construction\_on":"2022-09-06","contact\_city":"Oslo","contact\_country":"Norway","contact\_email":"post@energy-nest.com","contact\_info\_visible":true,"contact\_name":"N/A","contact\_phone":"66 77 94 60","contact\_state":"","contact\_street\_address":"Olav Brunborgs vei 6","contact\_zip":"1396","contractor\_1":"EnergyNest AS","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Arab Emirates","created\_at":"2016-02-04T13:59:14Z","created\_by\_id":368,"debt\_investor":"","decommissioning\_on":null,"desc":"The EnergyNest thermal energy storage (TES) system is made up from a large number of individual elements, connected through pipes in series and parallel. A storage element consists of state-of-the-art concrete storage medium called HEATCRETE® with integrated heat exchanger tubes contained inside a steel casing. Multiple storage elements are stacked inside a steel structure. This allows for easy transportation, on-site assembly, and allows the majority of piping works to be prefabricated before installation. The system stores and transfers energy using oil, steam, or other heat transfer fluids, and has less than 1% losses over a 24-hour period.\r\n\r\nMasdar Institute of Science and Technology and EnergyNest initiated a comprehensive joint research project in 2013 for building and testing a 2 x 500 kWhth Thermal Energy Storage (TES) pilot. The technical performance of this pilot installation has been validated by DNV GL with regards to operating temperature, energy storage capacity, and energy efficiency.","developer":"EnergyNest AS","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"Federal/National Commercialization Incentive","funding\_source\_3":"","funding\_source\_details\_1":"Norwegian Research Council","funding\_source\_details\_2":"Innovation Norway","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2030,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2030/art\_energynest\_masdar\_620.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2030/thumb\_art\_energynest\_masdar\_620.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2030/partner\_art\_energynest\_masdar\_620.jpg"}},"integrator\_company":"EnergyNest AS","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":24.4266734,"longitude":54.614979,"master\_project\_id":null,"name":"Abu Dhabi TES Pilot - EnergyNest AS","om\_contractor":"","organization":"EnergyNest AS","owner\_1":"EnergyNest AS","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Available upon request","primary\_reference":"http://www.energy-nest.com/news/detail/news/detail/News/thermal-energy-storage-pilot-project-inaugurated-in-abu-dhabi/","primary\_reference1":"http://www.nordicgreen.net/startups/article/norwegian-energynest-inaugurates-its-thermal-energy-storage-pilot-abu-dhabi","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"The Masdar Institute of Science and Technology (Masdar Institute) was established by the government of Abu Dhabi as a not-for-profit, private graduate university to develop indigenous R&D capacity in Abu Dhabi addressing issues of importance to the region. In collaboration with the Massachusetts Institute of Technology (MIT), Masdar Institute has developed an academic and research platform that articulates its mission and vision according to critical energy and sustainability challenges. An important characteristic of Masdar Institute is its focus on complex real-world problems that require a multidisciplinary approach for the development of solutions from an integrated technology, systems and policy perspective. This multi-interdisciplinary and integrated approach is supported by the structure of its academic programs and by the emphasis placed on engaging external partners from industry, government, and other academic institutions in collaborative activities. Serving as a key pillar of innovation and human capital, Masdar Institute remains fundamental to Masdar’s core objectives of developing Abu Dhabi’s knowledge economy and finding solutions to humanity’s toughest challenges such as climate change. Masdar Institute integrates theory and practice to incubate a culture of innovation and entrepreneurship, working to develop the critical thinkers and leaders of tomorrow. With its world-class faculty and top-tier students, the Institute is committed to finding solutions to the challenges of clean energy and climate change through education and research.","research\_institution":"Masdar Institute of Science & Technology","research\_institution\_link":"https://www.masdar.ac.ae/","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"Abu Dhabi","status":"Operational","street\_address":"Masdar City","systems\_integration":"","technology\_classification":"","technology\_type":"Concrete Thermal Storage","technology\_type\_l1":"Concrete Thermal Storage","technology\_type\_l2":"Concrete Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-02-26T04:15:57Z","updated\_at\_by\_admin":"2016-05-17T00:25:40Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"EnergyNest AS","zip":""}},{"project":{"announcement\_on":"2022-02-09","approval\_status":0,"city":"Sydney","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N?A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-02-09T21:46:42Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"0-30kW of solar to be put on the roof of the complex, coupled with a battery capacity between 50-60kWh, or the equivalent of 5-6 of Tesla’s weekly cycle 10kWh home batteries","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2031,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"AESO","latitude":-33.8674869,"longitude":151.2069902,"master\_project\_id":null,"name":"Newtown Housing ","om\_contractor":"","organization":null,"owner\_1":"Newton Housing Co-Op","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.gizmodo.com.au/2016/02/a-newtown-housing-co-op-will-have-australias-first-multi-dwelling-solar-and-battery-storage-system/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":30,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"New South Wales","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Nickel Manganese Cobalt Battery","technology\_type\_l1":"Lithium Nickel Manganese Cobalt Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T22:14:20Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Tesla","zip":""}},{"project":{"announcement\_on":"2022-08-24","approval\_status":1,"city":"New Orleans","commissioning\_on":null,"companion":"","construction\_on":"2022-02-02","contact\_city":"","contact\_country":"","contact\_email":"ccavell@entergy.com","contact\_info\_visible":false,"contact\_name":"Charlotte J. Cavell","contact\_phone":"(504) 576-4132","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Blattner","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-02-09T23:44:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"A pilot solar-plus-storage project to test the use of a 500 kWh lithium-ion battery to balance the variability of a 1 MW solar array. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2032,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2032/17776368-mmmain.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2032/thumb\_17776368-mmmain.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2032/partner\_17776368-mmmain.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":29.9510658,"longitude":-90.0715323,"master\_project\_id":null,"name":"Entergy Solar-Plus-Storage Pilot Project","om\_contractor":"","organization":null,"owner\_1":"Entergy","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.utilitydive.com/news/entergy-breaks-ground-on-new-orleans-first-utility-scale-solar-complete-w/413378/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Louisiana","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-17T23:25:12Z","updated\_at\_by\_admin":"2016-05-17T23:25:12Z","updated\_by":null,"updated\_by\_email":null,"utility":"Entergy","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-02-01","approval\_status":0,"city":"Herrenhausen","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"madeleine.herdlitschka@daimler.com","contact\_info\_visible":true,"contact\_name":"Madeleine Herdlitschka, Research & Development Communications Future Powertrain Communications, Daimler AG","contact\_phone":"+49 711 17-76409","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2016-02-09T23:44:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"15 megawatt-hour energy storage system is being constructed by Daimler AG (with its subsidiary ACCUMOTIVE) and enercity (Stadtwerke Hannover) in Herrenhausen, Germany, \r\n\r\nThe energy storage facility will utilize around 3000 new electric vehicle (EV) battery packs to create its storage capacity.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2033,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":52.4089418,"longitude":9.6693916,"master\_project\_id":null,"name":"Daimler AG 15 MWh","om\_contractor":"","organization":"","owner\_1":"Daimler AG","owner\_2":"Enercity (Stadtwerke Hannover AG)","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://media.daimler.com/dcmedia/0-921-657589-1-1881109-1-0-0-0-0-1-0-0-0-1-0-0-0-0-0.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":15000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Hanover","status":"Under Construction","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-10T21:39:28Z","updated\_at\_by\_admin":"2016-08-10T21:39:28Z","updated\_by":null,"updated\_by\_email":null,"utility":"Enercity (Stadtwerke Hannover AG)","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-01-19","approval\_status":0,"city":"Mililani","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"amarks@aquion-energy.com","contact\_info\_visible":false,"contact\_name":"Aaron Marks","contact\_phone":"412.904.6408","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-02-11T20:36:09Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"EnSync, Inc. (NYSE MKT: ESNC), dba EnSync Energy Systems, a leading developer of innovative energy management systems serving the commercial, industrial and multi-tenant building markets, announces the ongoing successful operation of a distributed energy project utilizing EnSync's energy management system integrated with solar PV and Aquion Energy's Aqueous Hybrid Ion (AHI™) batteries to power an agricultural installation at Mari's Garden in Mililani, Hawaii. Continually operating for more than four months, EnSync's technology is providing power for water pumps critical to supporting 24/7 hydroponics and aquaponics fishery operations.","developer":"Nidon","electronics\_provider":"EnSync Energy Systems","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2034,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2034/Nidon\_ZBB\_Mari\_Farms\_6.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2034/thumb\_Nidon\_ZBB\_Mari\_Farms\_6.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2034/partner\_Nidon\_ZBB\_Mari\_Farms\_6.jpg"}},"integrator\_company":"EnSync Energy Systems","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":21.4513314,"longitude":-158.0152807,"master\_project\_id":null,"name":"Ensync Distributed Energy Management: Aquion ","om\_contractor":"","organization":null,"owner\_1":" Mari's Garden","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://ensync.mwnewsroom.com/press-releases/ensync-s-distributed-energy-management-successfully-powers-off-grid-agricultural-nyse-mkt-esnc-1239448","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":25,"size\_kwh":3.5,"size\_kwh\_hours":3,"size\_kwh\_minutes":30.0,"state":"Hawaii","status":"Operational","street\_address":"Mari's Garden","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-ion Battery","technology\_type\_l1":"Sodium based Battery","technology\_type\_l2":"Sodium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T22:13:21Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Aquion Energy","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"McHenry County","commissioning\_on":"2021-12-20","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Sandi.Briner@edf-re.com","contact\_info\_visible":false,"contact\_name":"Sandi Briner","contact\_phone":"858-521-3525","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Renewable Energy Systems (RES)","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-02-27T05:33:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"EDF Group’s first battery storage project in North America, developed and built by EDF Renewable Energy, reached commercial operation on December 20, 2015. The energy storage system, located in McHenry County, Illinois, added 40 megawatts (MW) of flexible capacity (20 MW nameplate) to the PJM Regional Transmission Organization (RTO) and will participate in both the regulation and capacity markets. \r\n\r\nEDF Renewable Energy acquired 100% interest in the project late in the first quarter of 2015 from Chicago-based GlidePath Power; construction commenced in June 2015. The system is interconnected at the distribution level into Commonwealth Edison Company (ComED). The battery and power electronics were supplied by BYD America, consisting of 11 containerized units totaling 20 MW (22MVA) and is performing at expectation \*\*\*Note the 19.8 MW number comes from GlidePath's website www.glidepath.net","developer":"GlidePath Power & EDF Renewable Energy","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2035,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2035/2020\_mchenry\_edf.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2035/thumb\_2020\_mchenry\_edf.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2035/partner\_2020\_mchenry\_edf.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":42.3039993,"longitude":-88.4016041,"master\_project\_id":null,"name":"McHenry Battery Storage Project - EDF Renewable Energy","om\_contractor":"EDF Store and Forecast and EDF Renewable Energy","organization":"","owner\_1":"EDF Renewable Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.edf-re.com/edf-renewable-energy-announces-commercial-operation-first-battery-storage-project/","primary\_reference1":"http://www.utilitydive.com/news/frances-edf-will-offer-solarstorage-product-via-us-based-subsidiary/414726/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":20000,"size\_kwh":2.33333333333333,"size\_kwh\_hours":2,"size\_kwh\_minutes":20.0,"state":"Illinois","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-26T18:40:51Z","updated\_at\_by\_admin":"2016-04-20T19:13:31Z","updated\_by":null,"updated\_by\_email":null,"utility":"ComEd","utility\_type":"Investor Owned","vendor\_company":"BYD America","zip":""}},{"project":{"announcement\_on":"2022-11-24","approval\_status":0,"city":"Maui","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"NA","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-01T00:58:55Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"JuiceBox Energy, a privately-held –Silicon Valley company committed to providing safe, reliable, intelligent, and connected energy storage, announces the first Hawaii installation of its 8.6 kWh Energy Storage System with Rising Sun Solar on the island of Maui.\r\nJuiceBox Energy partnered with Rising Sun Solar, one of Hawaii’s top home solar installers, to install the energy storage system at the home of Brad Albert, Rising Sun Solar’s co-owner.\r\nThe JuiceBox Energy Storage System is an automotive-grade 8.6kWh lithium-ion battery pack with proprietary charge control and energy management system coupled to the Schneider Conext XW+ inverter, which is now listed and approved for use in Hawaii. The battery management and system controller is designed for safe, reliable, long lasting control of the lithium-ion cells. It delivers over 4000 cycles and comes with a 10-year warranty. It also has redundant protection mechanisms to prevent over voltage, over current, under voltage and over temperature conditions. The system is designed to support grid-tied, grid isolated in the event of grid failure, and off-grid configurations. Each configuration delivers years of dedicated peak shifting, back-up power, energy efficiency and enables participation in emerging transactive energy exchanges.","developer":"","electronics\_provider":"Schneider Conext XW+ inverter","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2036,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2036/gI\_86018\_Rising\_Sun\_JuiceBox\_ESS\_installation.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2036/thumb\_gI\_86018\_Rising\_Sun\_JuiceBox\_ESS\_installation.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2036/partner\_gI\_86018\_Rising\_Sun\_JuiceBox\_ESS\_installation.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":20.7983626,"longitude":-156.3319253,"master\_project\_id":null,"name":"Juicebox Energy-Rising Sun Solar- Maui ","om\_contractor":"","organization":null,"owner\_1":"Brad Albert","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.prweb.com/releases/2015/11/prweb13100152.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":4,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Hawaii","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T22:12:59Z","updated\_at\_by\_admin":"2016-03-01T01:00:02Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Juicebox Energy","zip":""}},{"project":{"announcement\_on":"2022-02-08","approval\_status":0,"city":"Chennai","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"Mumbai","contact\_country":"India","contact\_email":"Aniruddha.Basu@LntTechservices.com","contact\_info\_visible":false,"contact\_name":"Aniruddha Basu","contact\_phone":"080 67675810","contact\_state":"Maharashtra","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"India","created\_at":"2016-03-01T17:04:52Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The innovative project combines eCamion’s modular storage solution with L&amp;T Technology Services’ Smart Inverter solution, designed with cutting edge technology for both Indian as well as global markets. Grid simulation and testing is conducted in Ontario by Ryerson University while the onsite integration and deployment will be managed by Anna University on the Tamil Nadu Generation &amp; Distribution Company grid.","developer":"","electronics\_provider":"L&amp;T Technology Services' Smart Inverter","energy\_management\_software\_provider":null,"funding\_amount\_1":300000.0,"funding\_amount\_2":750000.0,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party RD&amp;D","funding\_source\_2":"State/Provincial/Regional Debt","funding\_source\_3":"","funding\_source\_details\_1":"Queens Park","funding\_source\_details\_2":"New York State Energy and Research Development Authority ","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2037,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Anna University","integrator\_fax":null,"is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":13.0826802,"longitude":80.2707184,"master\_project\_id":null,"name":"L&T/eCamion-Anna University","om\_contractor":"","organization":null,"owner\_1":"L&amp;T Technology Services","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.businesswire.com/news/home/20160208005540/en/LT-Technology-Services-Canada%E2%80%99s-eCamion-Ryerson-University","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"","research\_desc":"","research\_institution":"Ryseron University/Anna University","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability &amp; Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":125,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Tamil Nadu","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T22:12:47Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Tamil Nadu Generation &amp; Distribution Company","utility\_type":"","vendor\_company":"eCamion's modular Storage","zip":""}},{"project":{"announcement\_on":"2022-06-01","approval\_status":1,"city":"Neumarkt","commissioning\_on":"2022-05-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"christopher.kimla@gildemeister.com","contact\_info\_visible":false,"contact\_name":"Christopher Kimla","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2016-03-01T17:04:53Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Willibald-Gluck High School in Neumarkt, Oberpfalz was equipped with the very latest energy technology. For power supply a PV system was installed on the roofs of the school and the gym. The electricity generated by solar energy is used directly in the building or, for example on weekends, stored in the CellCube FB 30-130 energy storage system. Surpluses continue to flow into the public grid. Thus, the CellCube is used primarily for self-use of electricity.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2038,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2038/10\_Vanadium-Redox-Flow-Batterie\_vor\_Turnhalle.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2038/thumb\_10\_Vanadium-Redox-Flow-Batterie\_vor\_Turnhalle.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2038/partner\_10\_Vanadium-Redox-Flow-Batterie\_vor\_Turnhalle.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":49.2772606,"longitude":11.4671996,"master\_project\_id":null,"name":"Cellcube-Willibald-Gluck High School","om\_contractor":"","organization":"","owner\_1":"Willibald-Gluck High School","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://energy.gildemeister.com/en/company/news/energy-storage-system-highschool/413098","primary\_reference1":"http://projektinfos.energiewendebauen.de/projekt/schulneubau-mit-niedrig-exergie-waermekonzept-und-stromlastmanagement/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":30,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Oberpfalz","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-23T21:27:55Z","updated\_at\_by\_admin":"2017-10-23T21:27:55Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-03-01","approval\_status":0,"city":"Springfield","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":10400000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-01T17:04:53Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"ComEd is building a microgrid in Bronzeville and just received federal funding for its next step: solar power and battery storage that could eventually keep the Chicago Police Department headquarters and other key buildings running during a mass power outage. Bronzeville was chosen as a starting point because it houses infrastructure that would be vital to keep running during a mass power outage, like medical centers and police headquarters.","developer":"","electronics\_provider":"ViZn","energy\_management\_software\_provider":null,"funding\_amount\_1":4000000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"US Department of Energy Sunshot Initiative ","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2039,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2039/ct-comed-smart-grid-bronzeville-bsi-20160126-001.jpeg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2039/thumb\_ct-comed-smart-grid-bronzeville-bsi-20160126-001.jpeg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2039/partner\_ct-comed-smart-grid-bronzeville-bsi-20160126-001.jpeg"}},"integrator\_company":"ViZn","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"MISO","latitude":39.7817213,"longitude":-89.6501481,"master\_project\_id":null,"name":"Comed-Bronzeville-Demo","om\_contractor":"ViZn","organization":null,"owner\_1":"ComEd","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.chicagotribune.com/bluesky/ct-comed-smart-grid-bronzeville-bsi-20160126-story.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Illinois","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Iron Flow Battery","technology\_type\_l1":"Other","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T22:12:17Z","updated\_at\_by\_admin":"2016-03-02T18:19:55Z","updated\_by":null,"updated\_by\_email":null,"utility":"ComEd ","utility\_type":"","vendor\_company":"ViZn","zip":""}},{"project":{"announcement\_on":"2022-01-14","approval\_status":0,"city":"Sault Ste. Marie ","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2016-03-01T17:04:53Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Sault Ste. Marie, Ontario is moving forward with plans to build a utility microgrid, and as a next step seeks assistance with project assessment.\r\nA city of about 75,000 people near the U.S./Canadian border, Sault Ste. Marie intends to install a microgrid to improve the local utility distribution system. Energy software provided by Opus One Solutions will connect the microgrids, and manage what the utility describes as a ‘grid of microgrids’ tied to Veridian’s operation systems.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2040,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2040/Sault\_Ste\_Marie\_Canal\_powerhouse\_and\_workshop-300x225.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2040/thumb\_Sault\_Ste\_Marie\_Canal\_powerhouse\_and\_workshop-300x225.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2040/partner\_Sault\_Ste\_Marie\_Canal\_powerhouse\_and\_workshop-300x225.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":46.521858,"longitude":-84.3460896,"master\_project\_id":null,"name":"Veridian-Ontario-Microgrid","om\_contractor":"","organization":null,"owner\_1":" Veridian Connections","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://microgridknowledge.com/ontario-utility-microgrid/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10,"size\_kwh":1.5,"size\_kwh\_hours":1,"size\_kwh\_minutes":30.0,"state":"Ontario","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-10T00:10:50Z","updated\_at\_by\_admin":"2016-05-10T00:10:50Z","updated\_by":null,"updated\_by\_email":null,"utility":"PUC Services","utility\_type":"Public Owned","vendor\_company":"Tesla","zip":""}},{"project":{"announcement\_on":"2022-03-01","approval\_status":0,"city":"Sharon","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"rbarrio@dresnerallencaron.com","contact\_info\_visible":false,"contact\_name":"Rudy Barrio","contact\_phone":"(212) 691-8087","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-01T17:04:53Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Axion Power Internation has filed an interconnection application with PJM Interconnection for a site in Sharon, PA. Axion currently has a lease option agreement on the property and is seeking regulatory approval to deploy a 12.5 MW battery energy storage system to engage in the business of frequency regulation. The proposed project site is a former steel fabrication facility in Sharon, PA which is about 60 miles north of Pittsburgh and twenty minutes from the Axion technical center in New Castle, PA. The successful issuance of the interconnection agreement would allow Axion to participate in the PJM regulation market. The application is currently moving through the PJM interconnection review process, and Axion is evaluating project financing options for this major commercial project.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2041,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"","is\_sub\_project":null,"iso":"PJM","latitude":41.2331116,"longitude":-80.4934035,"master\_project\_id":null,"name":"Axion Power International-Sharon-12.5 MW ","om\_contractor":"","organization":null,"owner\_1":"Axion Power","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"NA","primary\_reference":"http://www.prnewswire.com/news-releases/axion-power-international-files-for-pjm-interconnection-agreement-300201605.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":12500,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Pennsylvania","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead Carbon Battery","technology\_type\_l1":"Advanced Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T22:11:39Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-01-17","approval\_status":0,"city":"Butleigh","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N.A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2016-03-01T17:15:34Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"U.K. headquartered RES has signed an EPC contract with Western Power Distribution (WPD), the electricity distributor for the Midlands, the South West and South Wales, to build and support a 300kVA/640kWh battery energy storage system (BESS).\r\n","developer":"RES","electronics\_provider":"RES","energy\_management\_software\_provider":null,"funding\_amount\_1":1429305.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Western Power Distribution ","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2042,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2042/sheep-with-solar-panels-580x358.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2042/thumb\_sheep-with-solar-panels-580x358.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2042/partner\_sheep-with-solar-panels-580x358.jpg"}},"integrator\_company":"RES","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.1007505,"longitude":-2.6846935,"master\_project\_id":null,"name":"Western Power Distribution-SomerSet ","om\_contractor":"RES","organization":null,"owner\_1":"Western Power 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Owned","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":"2022-07-13","approval\_status":1,"city":"Abira-Chou","commissioning\_on":"2021-12-25","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"michael.moyer@sumitomocorp.com","contact\_info\_visible":false,"contact\_name":"Michael Moyer","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Sumitomo Electric Industries ","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2016-03-01T17:15:34Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Hokkaido Electric Power Co Inc (HEPCO) and Sumitomo Electric Industries (SEI) Ltd announced Dec 25, 2015, that they have completed a large-scale storage battery system at Minamihayakita Transformer Station in Abira-chou, Hokkaido, and started to test the system.\r\n\r\nThe two companies installed a redox flow battery manufactured by SEI. It has a rated output of 15MW and a capacity of 60MWh and is one of the world's largest redox flow batteries in operation.\r\n\r\nIn the verification project, which will last for about three years, HEPCO and SEI will verify the performance of the system as a new system for adjusting the output fluctuation of wind and solar power generation facilities and develop optimal control technologies.","developer":"Sumitomo Electric Industries ","electronics\_provider":"Sumitomo Electric Industries ","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2043,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2043/hepco\_sei.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2043/thumb\_hepco\_sei.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2043/partner\_hepco\_sei.JPG"}},"integrator\_company":"Sumitomo Electric Industries ","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":43.0646147,"longitude":141.3468074,"master\_project\_id":null,"name":"Minami Hayakita Substation Hokkaido Electric Power- Sumitomo","om\_contractor":"Sumitomo Electric Industries ","organization":"Sumitomo","owner\_1":"Hokkaido Electric Power","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N.A","primary\_reference":"http://renewables.seenews.com/news/japan-s-hepco-sei-kick-off-15-mw-battery-system-verification-507909","primary\_reference1":"http://techon.nikkeibp.co.jp/atclen/news\_en/15mk/010500287/?ST=msbe","projected\_lifetime":"3.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity 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costs.","developer":"Tesla","electronics\_provider":"Tesla","energy\_management\_software\_provider":null,"funding\_amount\_1":4000000.0,"funding\_amount\_2":4000000.0,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"Private/Third Party","funding\_source\_3":"","funding\_source\_details\_1":"Center for Sustainable Energy","funding\_source\_details\_2":"Tesla","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2044,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Tesla","integrator\_fax":null,"is\_multi\_system":"","is\_sub\_project":null,"iso":"CAISO","latitude":33.1192068,"longitude":-117.086421,"master\_project\_id":null,"name":"Escondido School District-Tesla","om\_contractor":"Tesla","organization":null,"owner\_1":"Escondido School District 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EOS Energy, citing a report it commissioned from DNV GL, says its zinc hybrid cathode battery technology can be manufactured at a cost of $91-$116/kWh at commercial volumes of 100 MW/year.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":750000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"New Tork State Energy and Research development Authority ","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2045,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"","is\_sub\_project":null,"iso":"NYISO","latitude":41.5964825,"longitude":-73.91097,"master\_project\_id":null,"name":"NYSERDA-EOS Microgrid","om\_contractor":"","organization":null,"owner\_1":"NYSERDA","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"NA","primary\_reference":"http://www.utilitydive.com/news/eos-energy-touts-storage-for-ny-microgrid-as-lowest-cost-battery-solution/411640/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":4.03333333333333,"size\_kwh\_hours":4,"size\_kwh\_minutes":2.0,"state":"New Tork","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Air Battery","technology\_type\_l1":"Zinc Air Battery","technology\_type\_l2":"Metal Air Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T22:09:54Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"EOS","zip":""}},{"project":{"announcement\_on":"2022-01-19","approval\_status":0,"city":"yantai","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"NA","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Beijing Huadian Tianren Electric Power Control Technology Co., Ltd","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2016-03-01T17:15:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Maxwell Technologies, Inc. (Nasdaq: MXWL), a leading developer and manufacturer of ultracapacitor-based energy storage and power delivery products, announced today its ultracapacitors have been selected by Beijing Huadian Tianren Electric Power Control Technology Co., Ltd., a subsidiary of China Guodian Corporation, as the core component of a wind farm energy storage demonstration project. One of the five largest power producers in the country, China Guodian Corporation's system is the first megawatt (MW)-scale, ultracapacitor-based wind farm energy storage system in the world. ","developer":"Beijing Huadian Tianren Electric Power Control Technology Co., Ltd","electronics\_provider":"Beijing Huadian Tianren Electric Power Control Technology Co., Ltd","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2046,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Beijing Huadian Tianren Electric Power Control Technology Co., Ltd","integrator\_fax":null,"is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":37.463822,"longitude":121.447935,"master\_project\_id":null,"name":"Maxwell-China Guodin Wind Energy Storage System ","om\_contractor":"Beijing Huadian Tianren Electric Power Control Technology Co., 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country.","developer":"","electronics\_provider":"Imergy","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2047,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Imergy","integrator\_fax":null,"is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":-26.2041028,"longitude":28.0473051,"master\_project\_id":null,"name":"Multinational Telecommunications company- Imergy","om\_contractor":"","organization":null,"owner\_1":"MULTINATIONAL MOBILE TELECOMMUNICATIONS NETWORK GROUP 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(CEFC)","decommissioning\_on":null,"desc":"juwi’s Australian unit built the 10.6 megawatt solar park at the DeGrussa mine about 560 miles (901 kilometers) north of Perth for Sandfire Resources NL. The park’s 34,000 solar modules are spread over 49 acres and linked to a 6 megawatt battery storage system. Together they’ll supply daytime power for Degrussa.\r\n\r\nA 19 megawatt diesel plant can take over the mine’s power supply when the solar panels aren’t producing. The solar plant will reduce DeGrussa’s carbon dioxide emissions by 12,000 tons annually and cut diesel consumption by 1.3 million gallons or 20 percent. The project was financed by the Clean Energy Corporation, Neoen SAS and with a $15.7 million USD grant from the Australian Renewable Energy Agency.\r\n\r\nSandfire Resources NL signed the offtake of electricity for 6 years and Origin energy signed the offtake for LGC’s (Green Certificates) for 5.5 years. The CEFC (Clean Energy Finance Corporation) provided the project debt.\r\n\r\nhttp://www.energy-storage.news/editors-blog/in-pictures-australian-copper-and-gold-mines-solar-diesel-storage-hybrid-pr\r\n\r\nhttps://www.youtube.com/watch?v=ubThWq\_WTLM&feature=youtu.be","developer":"juwi Renewable Energy","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":15700000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"Federal/National Debt","funding\_source\_3":"","funding\_source\_details\_1":"Australian Renewable Energy Agency (ARENA)","funding\_source\_details\_2":"Australian Government’s Clean Energy Finance Corporation (CEFC)","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2048,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2048/juwi\_degrussa.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2048/thumb\_juwi\_degrussa.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2048/partner\_juwi\_degrussa.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-26.3622715,"longitude":118.6139808,"master\_project\_id":null,"name":"DeGrussa Copper Mine - juwi AG","om\_contractor":"juwi Renewable Energy","organization":"Australian Energy Storage Alliance (AESA)","owner\_1":"Neoen SAS","owner\_2":"Sandfire Resources NL (via signed PPA for 6 years of electricity offtake)","owner\_type":"2","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Save 30% on Fuel Costs, Diesel Consumption to be Cut by 20%","primary\_reference":"http://www.juwi.com/news/artikel/juwiarticle/artikel/detail//largest-off-grid-solar-project-complete/","primary\_reference1":"http://www.pv-magazine.com/news/details/beitrag/ppa-generation-certificates-signed-for-degrussa-solarstorage-plant\_100025807/#axzz4JhXvBSGX","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"On-Site Power","service\_use\_case\_5":"Onsite Renewable Generation Shifting","service\_use\_case\_6":"Ramping ","service\_use\_case\_7":"Renewables Capacity Firming","service\_use\_case\_8":"Renewables Energy Time Shift","service\_use\_case\_9":"Resiliency","siting":"","size\_kw":6000,"size\_kwh":0.333333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":20.0,"state":"Western Australia","status":"Operational","street\_address":"150 km North, Great Northern Highway","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-15T19:23:30Z","updated\_at\_by\_admin":"2016-09-09T22:02:21Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":"6642"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Iksan","commissioning\_on":"2022-07-02","companion":"","construction\_on":"2022-07-01","contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"LG Chem","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2016-03-01T17:15:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"LG Group is working on accelerating the success of its energy solution products by installing them in its factories. \r\n\r\nThe conglomerate aims to insert solar energy panels on the roofs of 19 of its factories and also plans to equip LG Chem plants in Iksan, North Jeolla, and Ochang, North Chungcheong, with efficient energy storage systems (ESS).\r\n\r\nLG believes that establishing and operating these products in its own plants will help it to manage energy efficiency while gaining the trust of potential clients.","developer":"LG Chem","electronics\_provider":"LG Chem","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2049,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2049/27213712.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2049/thumb\_27213712.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2049/partner\_27213712.jpg"}},"integrator\_company":"LG Chem","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.9482858,"longitude":126.9575991,"master\_project\_id":null,"name":"Iksan ESS - LG Chem","om\_contractor":"LG Chem","organization":"LG Chem","owner\_1":"LG Chem","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The new facilities with ESS are expected to save about 1.3 billion won ($1.2 million) annually for the company and will also help LG deal with power shortages without having to shut down its plants.","primary\_reference":"http://koreajoongangdaily.joins.com/news/article/Article.aspx?aid=2987055","primary\_reference1":"https://www.ny-best.org/sites/default/files/type-page/34371/attachments/04%20Fok.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":3000,"size\_kwh":7.66666666666667,"size\_kwh\_hours":7,"size\_kwh\_minutes":40.0,"state":"North Jeolla","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T06:17:23Z","updated\_at\_by\_admin":"2016-03-02T17:52:42Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"LG Chem","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Nishinoshima Town","commissioning\_on":"2022-09-30","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"NA","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":" Mitsubishi Electric Corporation","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2016-03-01T17:15:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Oki Hybrid Project introduced a hybrid storage battery system combining the NAS battery, with its excellent long-term output characteristics, and a lithium-ion battery, which has outstanding short-term output characteristics. The NAS battery will stabilize large, slow fluctuations, while the lithium-ion battery will absorb rapid, small fluctuations due to passing clouds or sudden changes in wind speed. The combination and coordinated control of two types of storage battery for a single objective is an advanced initiative being attempted for the first time in Japan.","developer":" Mitsubishi Electric Corporation","electronics\_provider":" Mitsubishi Electric Corporation","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2050,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2050/151020\_img01.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2050/thumb\_151020\_img01.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2050/partner\_151020\_img01.jpg"}},"integrator\_company":" Mitsubishi Electric Corporation","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":36.0930267,"longitude":132.9944224,"master\_project\_id":null,"name":"NGK-Chugoku Electric","om\_contractor":" Mitsubishi Electric Corporation","organization":null,"owner\_1":"Chugoku Electric","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"NA","primary\_reference":"http://www.ngk.co.jp/english/news/2015/1020.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":4200,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Shimane Prefecture","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium-sulfur Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T22:08:11Z","updated\_at\_by\_admin":"2016-03-02T17:53:26Z","updated\_by":null,"updated\_by\_email":null,"utility":"Chugoku Electric Power Nishinoshima Substation","utility\_type":"","vendor\_company":"NGK","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Ochang","commissioning\_on":null,"companion":"","construction\_on":"2022-07-01","contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"LG Chem","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2016-03-01T17:15:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"LG Group is working on accelerating the success of its energy solution products by installing them in its factories. \r\n\r\nThe conglomerate aims to insert solar energy panels on the roofs of 19 of its factories and also plans to equip LG Chem plants in Iksan, North Jeolla, and Ochang, North Chungcheong, with efficient energy storage systems (ESS).\r\n\r\nLG believes that establishing and operating these products in its own plants will help it to manage energy efficiency while gaining the trust of potential clients.\r\n\r\nhttp://koreajoongangdaily.joins.com/news/article/Article.aspx?aid=2987055","developer":"LG Chem","electronics\_provider":"LG Chem","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":null,"hidden":false,"id":2051,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2051/201408121422528950\_cont.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2051/thumb\_201408121422528950\_cont.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2051/partner\_201408121422528950\_cont.JPG"}},"integrator\_company":"LG Chem","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":null,"longitude":null,"master\_project\_id":null,"name":"Ochang ESS - LG Chem","om\_contractor":"LG Chem","organization":"LG Chem","owner\_1":"LG Chem","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"LG Chem expects energy related cost to be cut up to 4 hundred million KRW with the newly constructed large capacity ESS.","primary\_reference":"http://koreajoongangdaily.joins.com/news/article/Article.aspx?aid=2987055","primary\_reference1":"https://www.ny-best.org/sites/default/files/type-page/34371/attachments/04%20Fok.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1500,"size\_kwh":4.66666666666667,"size\_kwh\_hours":4,"size\_kwh\_minutes":40.0,"state":"North Jeolla","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T06:14:49Z","updated\_at\_by\_admin":"2016-03-02T17:58:43Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"LG Chem","zip":""}},{"project":{"announcement\_on":"2022-11-16","approval\_status":2,"city":"Jakarta","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"kavila@fluidicenergy.com","contact\_info\_visible":false,"contact\_name":"Katie Avila","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Caterpillar","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Indonesia","created\_at":"2016-03-01T17:15:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Fluidic Energy, in partnership with Caterpillar Inc. and PT Perusahaan Listrik Negara (PLN) (Indonesia’s state-owned Electricity Company), will provide reliable and renewable electricity to 500 remote villages throughout Indonesia. The village grid systems deployed will utilize more than 35 MWp of photovoltaic panels and in excess of 250 MWh of Fluidic Energy storage capacity. \r\n\r\nThe project will provide electricity to 325,000 households and more than 1.7 million residents. The “500 Island Project” is one of the most ambitious and largest rural electrification projects in the world, and accelerates the Indonesian Government’s promise of bringing reliable energy to all populated areas of the country. With Fluidic manufacturing operation facilities already set up in Indonesia, the project has high local content and will create a large number of new manufacturing and local jobs.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2052,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2052/fluidic\_energy.png","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2052/thumb\_fluidic\_energy.png"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2052/partner\_fluidic\_energy.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":-6.2087634,"longitude":106.845599,"master\_project\_id":"","name":"Indonesia 500 Island Project - Fluidic Energy","om\_contractor":"","organization":null,"owner\_1":"Fluidic Energy","owner\_2":"P.T. Sewatama","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.greentechmedia.com/articles/read/Fluidic-Energy-is-the-Biggest-Zinc-Air-Battery-Startup-You-Havent-Heard-Of","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":4400,"size\_kwh":48.0,"size\_kwh\_hours":48,"size\_kwh\_minutes":0.0,"state":"Jakarta","status":"Announced","street\_address":"Throughout Indonesia","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Air Battery","technology\_type\_l1":"Zinc Air Battery","technology\_type\_l2":"Metal Air Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-24T18:03:17Z","updated\_at\_by\_admin":"2016-05-24T18:03:17Z","updated\_by":null,"updated\_by\_email":null,"utility":"PT Perusahaan Listrik Negara","utility\_type":"Investor Owned","vendor\_company":"Fluidic Energy","zip":""}},{"project":{"announcement\_on":"2021-12-18","approval\_status":2,"city":"kidston","commissioning\_on":"2022-01-01","companion":"270MW solar project","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ma@genexpower.com.au; hh@genexpower.com.au","contact\_info\_visible":false,"contact\_name":"Michael Addison, Harrison Holihan","contact\_phone":" (02) 9993 4411","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Entura (Feasibility Manager, part of Hydro Tasmania)","contractor\_2":"","contractor\_3":"","cost\_CAPEX":282000000.0,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-03-01T17:15:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"ARENA is supporting a feasibility study into the construction of a pumped storage hydroelectric power plant at the disused Kidston Gold Mine in North Queensland. Located 270 km north west of Townsville, the project has the potential to generate up to 250 MW of rapid response, flexible power for delivery into Australia’s National Electricity Market.\r\n\r\nKidston Renewable Energy Hub is comprised of three renewable projects; the Kidston Solar Project (Phase One 50MW) [KSP1], The Kidston Solar Project (Phase Two 270MW) [KSP2], and the Kidston Pumped Storage Hydro Project (250MW) [KPSHP]. KSHP is integrated with KSP2, with solar energy generated from the 270MW project to power the 'pumping cycle' of the hydro storage project during the day. Grid power will be used for the overnight 'pumping cycle' when energy prices are low.\r\n","developer":"Genex Power Limited","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":4000000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"ARENA","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2053,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2053/kidstongenex.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2053/thumb\_kidstongenex.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2053/partner\_kidstongenex.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-18.889097,"longitude":144.138785,"master\_project\_id":null,"name":"Kidston Pumped Storage Hydro Project - Kidston Renewable Energy Hub","om\_contractor":"","organization":"genexpower","owner\_1":"Genex Power Limited","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://arena.gov.au/project/kidston-pumped-storage-project/","primary\_reference1":"http://www.genexpower.com.au/the-kidston-pumped-storage-hydro-project-250mw.html","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Queensland","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Pumped Hydro Storage","technology\_type\_l1":"Pumped Hydro Storage","technology\_type\_l2":"Pumped Hydro","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2017-10-24T01:42:39Z","updated\_at\_by\_admin":"2017-10-24T01:42:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-11-24","approval\_status":0,"city":"Yeongyang","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"NA","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2016-03-01T17:15:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"South Korean battery-maker LG Chem said Tuesday that it has teamed up with GS E&amp;R, a local power generator, to build the world’s largest wind power storage system in Yeongyang, North Gyeongsang Province.\r\n\r\nThe ESS will have a storage capacity of 50 megawatt hours, which can power some 5,000 households per day. The batteries are the equivalent of those used for 2,700 units of GM’s Volt plug-in hybrid. \r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":null,"hidden":false,"id":2054,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2054/20151124001543\_0.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2054/thumb\_20151124001543\_0.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2054/partner\_20151124001543\_0.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":null,"longitude":null,"master\_project\_id":null,"name":"GS E&R-LG Chem ","om\_contractor":"","organization":null,"owner\_1":"GS E&amp;R ","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"NA","primary\_reference":"http://www.koreaherald.com/view.php?ud=20151124001027&amp;utm\_source=Sailthru&amp;utm\_medium=email&amp;utm\_campaign=Issue:%202015-11-24%20Utility%20Dive%20Storage&amp;utm\_term=Utility%20Dive:%20Storage","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":12500,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"North Gyeongsang ","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T22:06:34Z","updated\_at\_by\_admin":"2016-03-02T18:00:49Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-09","approval\_status":0,"city":"Montauk","commissioning\_on":"2022-01-01","companion":"90-MW offshore wind farm","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"NA","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-01T17:15:39Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":" Deepwater Wind is proposing to build a 90-MW offshore wind farm combined with 15 MW of storage capacity by General Electric (NYSE:GE) to serve the South Fork peninsula in New York state. They will use lithium-ion battery technology designed and installed by GE and will together store 15 MW of energy.","developer":"Deepwater Wind","electronics\_provider":"General Electric","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2056,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2056/94b7655af25174ef5f4568bf9a3359a5f1119fca.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2056/thumb\_94b7655af25174ef5f4568bf9a3359a5f1119fca.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2056/partner\_94b7655af25174ef5f4568bf9a3359a5f1119fca.jpg"}},"integrator\_company":"General Electric","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":41.0359353,"longitude":-71.9545146,"master\_project\_id":null,"name":"Deepwater Wind-New York ","om\_contractor":"General Electric","organization":null,"owner\_1":"Deepwater Wind LLC","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"NA","primary\_reference":"http://renewables.seenews.com/news/deepwater-wind-plans-90-mw-offshore-wind-15-mw-storage-in-ny-504865","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":15000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"New York","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-12T18:36:50Z","updated\_at\_by\_admin":"2016-03-10T22:33:50Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"General Electric","zip":""}},{"project":{"announcement\_on":"2022-12-01","approval\_status":0,"city":"San Vicente ","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N.A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-01T17:15:39Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The San Vicente Pumped Storage Project would establish a small reservoir above the existing San Vicente Reservoir, and a tunnel system and underground powerhouse to connect the two reservoirs. The powerhouse would contain four 125 MW reversible pump-turbines capable of lifting water to the upper reservoir or generating power as it flows down. During peak energy demand, water would flow down to generate carbon-free power. During off-peak periods, including daytime when renewable wind and solar power supplies exceed demand, water would be pumped to the upper reservoir.This would be a closed loop, off-stream system in an upland area with no natural water body. The exchange of water between the two reservoirs would not consume water or interfere with existing water supply, water quality, fisheries, or recreational uses of the San Vicente Reservoir. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2057,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":35.5069662,"longitude":-120.6709247,"master\_project\_id":null,"name":"San Vicente Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"City of San Deigo","owner\_2":"San Deigo Water Authority","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N.A","primary\_reference":"http://www.sdcwa.org/san-vicente-pumped-storage-project-study","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500000,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Closed-loop Pumped Hydro Storage","technology\_type\_l1":"Closed-loop Pumped Hydro Storage","technology\_type\_l2":"Closed-loop Pumped Hydro","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-03-24T17:40:31Z","updated\_at\_by\_admin":"2016-03-24T17:40:31Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Vaughan","commissioning\_on":"2022-10-08","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N.A","contact\_info\_visible":false,"contact\_name":"Sylvie Briz","contact\_phone":" 905-238-4065","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2016-03-01T17:15:39Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Panasonic Eco Solutions Canada Inc. announced that it has completed the installation and commissioning of its first pilot residential solar photovoltaic and energy storage system in North America. The pilot installation is at a single home residence in Vaughan, Ontario. The battery storage system used in this installation is powered by Panasonic’s Lithium-ion batteries. When combined with solar PV panels in an installation, the panel-generated electricity can work in synergy with the battery via a hybrid inverter to provide energy management, security, and cost performance benefits.","developer":"Panasonic ","electronics\_provider":"Panasonic ","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2058,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Panasonic ","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":43.8372079,"longitude":-79.508276,"master\_project\_id":null,"name":"Panasonic Eco Solutions Canada- Vaughan","om\_contractor":"Panasonic ","organization":null,"owner\_1":"Home Owner","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"NA","primary\_reference":"http://www.businesswire.com/news/home/20151008005143/en/Panasonic-Eco-Solutions-Canada-Installs-Pilot-Residential","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Ontario","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-10T00:10:42Z","updated\_at\_by\_admin":"2016-05-10T00:10:42Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Panasonic ","zip":""}},{"project":{"announcement\_on":"2022-08-01","approval\_status":0,"city":"Dublin","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N.A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Ireland","created\_at":"2016-03-01T17:15:40Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Mainstream Renewable Power is to trial a large-scale power storage system at an Irish wind farm from September. The Wind-Storage Hybrid Study, with assistance from Enterprise Ireland, will look at integrating wind generation with a mixture of flywheel, synchronous condenser and battery technologies. The aim is to assess the commercial viability of installing 2MW of storage at an operational 10MW wind site, then running the resulting hybrid station in the current Single Electricity Market.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2059,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":53.3498053,"longitude":-6.2603097,"master\_project\_id":null,"name":"Mainstream Renewable Power-","om\_contractor":"","organization":null,"owner\_1":"Mainstream Renewable Power-","owner\_2":"Enterprise Ireland","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"NA","primary\_reference":"http://renews.biz/71673/mainstream-trials-battery-in-ireland/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Leinster","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flywheel","technology\_type\_l1":"","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2016-03-08T22:02:04Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-02-25","approval\_status":0,"city":"Ananthapuramu","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N.A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"India","created\_at":"2016-03-01T17:15:40Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Solar Energy Corporation of India (SECI) is expected to release a tender for a 750 MW solar power park at Ananthapuramu, in Andhra Pradesh. The solar power park shall also include provisions for storage of up to 100 MW.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2060,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":14.6818877,"longitude":77.6005911,"master\_project\_id":null,"name":"Solar Energy Corporation of India (SECI)-100MW","om\_contractor":"","organization":null,"owner\_1":"Solar Energy Corporation of India ","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"NA","primary\_reference":"http://cleantechnica.com/2016/02/25/india-plans-750-mw-solar-power-park-100-mw-storage-capacity/?utm\_source=feedburner&amp;utm\_medium=feed&amp;utm\_campaign=Feed%3A+IM-cleantechnica+%28CleanTechnica%29","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Voltage Support","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Andhra Pradesh","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T08:52:37Z","updated\_at\_by\_admin":"2016-03-08T08:52:37Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-02-23","approval\_status":0,"city":"Dover","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"NA","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Edison Power Corporation","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-01T19:24:16Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Sunvault Energy and Edison Power Co. have agreed to develop a solar power plus large-scale energy storage project in Delaware. The total size of the project is 484 kW with both solar PV and 600 kW/300 kWh battery storage for three fire stations. ","developer":"Edison Power Corporation","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2061,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"","is\_sub\_project":null,"iso":"PJM","latitude":39.158168,"longitude":-75.5243682,"master\_project\_id":null,"name":"Sunvault Energy-Edison Power- Delaware Fire Station","om\_contractor":"","organization":null,"owner\_1":"Edison Power Co.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The project will produce an EBITDA of approximately $250,000 per year.","primary\_reference":"https://www.google.com/webhp?sourceid=chrome-instant&amp;ion=1&amp;espv=2&amp;es\_th=1&amp;ie=UTF-8#q=delaware","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":600,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Delaware","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T08:51:17Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":" Sunvault-Edison graphene EES","zip":""}},{"project":{"announcement\_on":"2022-02-10","approval\_status":1,"city":"Andover","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N.A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-01T19:24:16Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Schneider Electric announced that it is building a 400-kW solar plus storage microgrid at its Boston One campus in Massachusetts. The system will be able to store up to 1-MWh of electricity and will be able to “island” so as to potentially provide emergency shelter in the event of a long duration outage.","developer":"Duke Energy","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2062,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.6583356,"longitude":-71.1367953,"master\_project\_id":null,"name":"Schneider Electric-Boston One","om\_contractor":"Duke Energy","organization":null,"owner\_1":"Duke Energy","owner\_2":"REC Solar","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The System could supply up to 560,000 kWh of electricity per year.","primary\_reference":"http://www.renewableenergyworld.com/articles/2016/02/schneider-rec-solar-duke-partner-on-microgrid-as-a-service.html","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":400,"size\_kwh":2.5,"size\_kwh\_hours":2,"size\_kwh\_minutes":30.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T23:59:25Z","updated\_at\_by\_admin":"2016-04-06T23:59:25Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"EcoBlade","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Vlissingen","commissioning\_on":"2021-12-31","companion":"","construction\_on":"2022-07-13","contact\_city":"","contact\_country":"","contact\_email":"nikolay.peychev@aes.com","contact\_info\_visible":false,"contact\_name":"Nikolay Peychev","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"DELTA Infra","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Netherlands","created\_at":"2016-03-01T19:24:16Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Netherlands Advancion Energy Storage Array has begun operating and provides 10 MW / 10 MWh of storage to Dutch transmission system operator TenneT. The project, which is AES’s first installation on the European continent, will provide Primary Control Reserve (PCR), matching supply and demand on the local grid by using power stored in its batteries to respond quickly to grid imbalances. PCR is known by a number of other terms, such as frequency regulation, in the US and elsewhere.","developer":"AES","electronics\_provider":"Parker Hannifin","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2063,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2063/AES\_Netherlands\_Advancion\_Array\_-\_Ribbon\_Cutting.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2063/thumb\_AES\_Netherlands\_Advancion\_Array\_-\_Ribbon\_Cutting.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2063/partner\_AES\_Netherlands\_Advancion\_Array\_-\_Ribbon\_Cutting.jpg"}},"integrator\_company":"AES","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"TenneT","latitude":51.4536672,"longitude":3.5709125,"master\_project\_id":null,"name":"Vlissingen Advancion Energy Storage - AES","om\_contractor":"","organization":"","owner\_1":"AES Netherlands ","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://energystorage.cleantechnology-business-review.com/news/aes-unveils-10-mw-advancion-energy-storage-array-in-netherlands-180216-4814870","primary\_reference1":"http://aesenergystorage.com/deployments/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Zeeland","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-27T00:25:29Z","updated\_at\_by\_admin":"2016-05-19T20:44:42Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":"2022-02-22","approval\_status":0,"city":"HurGhada","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N.A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Sumitomo Electric Industries, NGK Insulators","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Egypt","created\_at":"2016-03-01T20:15:21Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Japanese funding and technical expertise will be lent to Egypt’s promising solar PV sector following the news that the Japanese government is loaning 10 billion yen ($89 million) to support the construction of a large-scale solar PV and storage project near to the city of Hurghada.\r\nThe project will comprise a 20 MW solar PV plant and a 30 MW storage facility, which will utilize several different types of battery technology, including lithium-ion and sodium-sulfur batteries. For its part, Egypt’s government will hold a public tender for the project exclusively for Japanese companies that have demonstrable battery technologies ready to go.","developer":"Sumitomo Electric Industries, NGK Insulators","electronics\_provider":"Sumitomo Electric Industries, NGK Insulators","energy\_management\_software\_provider":null,"funding\_amount\_1":89000000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Japanese Government","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2064,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2064/Egypt\_PV\_pyramids.EnergyNet\_Ltd.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2064/thumb\_Egypt\_PV\_pyramids.EnergyNet\_Ltd.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2064/partner\_Egypt\_PV\_pyramids.EnergyNet\_Ltd.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":27.2578957,"longitude":33.8116067,"master\_project\_id":null,"name":"Japan-Egypt-Hurghada-30 MW","om\_contractor":"","organization":null,"owner\_1":"El Canal Corporation ","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.pv-magazine.com/news/details/beitrag/japan-backs-solarstorage-project-in-egypt-with-89m-loan\_100023312/#axzz41gI6Kzrh","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":30000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Red Sea Governorate","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T08:49:54Z","updated\_at\_by\_admin":"2016-03-01T20:16:21Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Sumitomo Electric Industries, NGK Insulators","zip":""}},{"project":{"announcement\_on":"2021-12-14","approval\_status":0,"city":"-","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N.A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2016-03-01T23:13:20Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"RedT has sold one of its product to a building services firm that plans to integrate it with a solar photovoltaic system, which is to be installed at one of its sites. The customer intends to integrate the energy storage system with a solar photovoltaic system (“PV”) within a building at one of their major locations in Germany which will be available for demonstrations to other potential European customers.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2065,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2065/Unit\_Shipping\_in\_Germany.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2065/thumb\_Unit\_Shipping\_in\_Germany.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2065/partner\_Unit\_Shipping\_in\_Germany.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.165691,"longitude":10.451526,"master\_project\_id":null,"name":"RedT-Germany-10KW","om\_contractor":"","organization":null,"owner\_1":"Customer","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N.A","primary\_reference":"http://www.redtenergy.com/blog/redt-shipping-units-to-uk-and-europe","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"-","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T08:49:44Z","updated\_at\_by\_admin":"2016-03-01T23:14:15Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"redT","zip":""}},{"project":{"announcement\_on":"2021-12-14","approval\_status":0,"city":"-","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N.A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2016-03-01T23:13:20Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The order is from one of Europe’s largest utility companies, operating throughout the UK. This unit will be delivered to a warehousing and logistics company in the South West of England. The utility intends to trial the system to demonstrate improved payback on the customer’s existing PV installation, by enabling the storing of power for self-consumption or export at periods of high electricity price, and the battery will also be used to minimise the customer’s fees related to site import capacity. Alongside the analysis of these benefits, installing the system will allow examination of the potential for the use of flow batteries in value added grid/ancillary services, and it will also allow the charging and integration of multiple electric vehicles (cars, vans and forklifts) from the on-site PV.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2066,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2066/Unit\_Shipping\_in\_Germany.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2066/thumb\_Unit\_Shipping\_in\_Germany.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2066/partner\_Unit\_Shipping\_in\_Germany.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"","is\_sub\_project":null,"iso":"N/A","latitude":55.378051,"longitude":-3.435973,"master\_project\_id":null,"name":"RedT-Southwest England","om\_contractor":"","organization":null,"owner\_1":"Customer","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N.A","primary\_reference":"http://www.redtenergy.com/blog/redt-shipping-units-to-uk-and-europe","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":40,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"-","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T08:49:25Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"redT","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":".","commissioning\_on":"2022-08-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"JBartell@strategen.com","contact\_info\_visible":false,"contact\_name":"Jake Bartell","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Ireland","created\_at":"2016-03-02T00:28:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Global wind and solar company Mainstream Renewable Power, with assistance from Enterprise Ireland, will conduct a study to assess the commercial viability of attaching a large-scale storage device (such as a battery) to an operating wind farm in Ireland. If successful, the system could provide the solution to the single biggest challenge faced by wind power generation in the world today; what happens when the wind doesn’t blow?\r\nThe Wind-Storage Hybrid Study, which will begin in September 2014, will install a storage device (such as a battery) directly to an operating wind farm. The device will store electricity generated when there is no demand (at night for example) and release it when consumers need it. The new hybrid system could also significantly reduce the need for “spinning reserve” – the term used for expensive electricity plant which is often used to meet “spikes” in demand for electricity such as in the morning and in the evenings.","developer":"Enterprise Ireland","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2067,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":53.41291,"longitude":-8.24389,"master\_project\_id":null,"name":"Mainstream Renewable Power","om\_contractor":"","organization":"","owner\_1":"Mainstream Renewable Power","owner\_2":"","owner\_type":"3","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://mainstreamrp.com/mainstream-to-test-large-scale-battery-storage-at-irish-wind-farm/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time 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Plants","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2016-03-02T00:28:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The energy produced from the solar but not used during the day will charge the Powerwall and can then be used to provide them with the energy they need when they’re at home and their lights, music centres, computers, televisions and myriad other devices need feeding.","developer":" Solar Plants","electronics\_provider":" Solar Plants","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2068,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2068/6144.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2068/thumb\_6144.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2068/partner\_6144.jpg"}},"integrator\_company":" Solar Plants","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.481581,"longitude":-3.17909,"master\_project\_id":null,"name":"Welsh House-Tesla","om\_contractor":" Solar 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Wales","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T08:48:25Z","updated\_at\_by\_admin":"2016-03-02T00:29:26Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Tesla","zip":""}},{"project":{"announcement\_on":"2022-01-07","approval\_status":1,"city":"Butleigh","commissioning\_on":"2022-08-19","companion":"1.5 MW solar park, at Copley Wood near Butleigh, Somerset (owned by British Solar Renewables)","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"John.Fernandes@res-americas.com","contact\_info\_visible":false,"contact\_name":"John Fernandes","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"British Solar Renewables (BSR)","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1396055.0,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2016-03-02T00:36:35Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The 300 kW / 640 kWh BYD lithium-ion battery system at a solar farm in Somerset is one of the first industrial-scale battery storage facilities developed in the UK, thanks to an initiative between British Solar Renewables (BSR) and Western Power Distribution (WPD).\r\n\r\nThis £1 million project will demonstrate the technical and commercial feasibility of directly linking a major battery storage facility, a solar park and the electricity network.\r\n\r\nWPD, the electricity distributor for the Midlands, South West and South Wales, is carrying out the project funded by Ofgem’s Network Innovation Allowance, in conjunction with BSR and the National Solar Centre (NSC).\r\n\r\nThe aim is to realize the benefits of using battery storage on an industrial scale so it can play a key role in the UK energy market as it moves towards a renewable energy future. A key outcome of the initiative will be the creation of a framework commercial agreement model for use by investors and developers to increase battery storage assets across the UK.\r\n\r\nThe project is connected to WPD’s South West network and WPD will use the system to peak lop generation to avoid network overloads and voltage excursions, as well as harnessing reactive power from the batteries inverters to reduce voltage rise and using stored energy to support the network at times of high demand.","developer":"RES (UK)","electronics\_provider":"","energy\_management\_software\_provider":"BYD (Resolve battery control system)","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Ofgem’s Network Innovation Allowance","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2069,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2069/resbutleigh.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2069/thumb\_resbutleigh.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2069/partner\_resbutleigh.jpg"}},"integrator\_company":"RES (UK)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":51.0737494,"longitude":-2.7053241,"master\_project\_id":null,"name":"Western Power Distribution (WPD) Battery Storage Facility - RES (UK)","om\_contractor":"","organization":"RES (UK)","owner\_1":"Western Power Distribution (Distribution Network Operator) / RES (UK)","owner\_2":"RES (UK)","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.res-group.com/en/portfolio/?ProjectID=2715","primary\_reference1":"http://cleantechnica.com/2016/01/17/large-battery-storage-project-teams-with-solar-farm-in-uk/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"The BRE National Solar Centre was established in 2012 to provide independent evidence based information on solar energy systems and related topics. ","research\_institution":"UK National Solar Centre (NSC)","research\_institution\_link":"https://www.bre.co.uk/nsc/","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":300,"size\_kwh":2.13333333333333,"size\_kwh\_hours":2,"size\_kwh\_minutes":8.0,"state":"Somerset","status":"Operational","street\_address":"Copley Wood","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-06T08:37:59Z","updated\_at\_by\_admin":"2016-08-22T20:18:31Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Western Power Distribution (Subsidiary of PPL Corporation)","utility\_type":"Investor Owned","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":"2022-02-26","approval\_status":1,"city":"Lovell","commissioning\_on":null,"companion":"8.1 kW Solar Array","construction\_on":null,"contact\_city":"Milpitas","contact\_country":"United States","contact\_email":"gmaguire@juiceboxsolar.com","contact\_info\_visible":true,"contact\_name":"Greg Maguire","contact\_phone":"571-435-1899","contact\_state":"CA","contact\_street\_address":"1650 Centre Pointe Drive","contact\_zip":"95035","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-02T01:23:26Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"JuiceBox Energy and ReVision Energy have embarked upon a unique installation of an 8.1 KW solar panel array and an innovative energy storage system at the Charlotte Hobbs Memorial Library in Lovell, Maine.\r\nThe 115-year-old library is being outfitted with the latest in high-tech energy storage that supports the board of trustees’ mission statement to combine the traditional role of the institution with a commitment to reducing the building’s carbon footprint. Funded by an anonymous donor, this project provides the library with integrated solar and energy storage to reduce grid reliance, lower costs, and ensure emergency standby electricity. The combined system consists of 27 high-efficiency solar panels and the intelligent JuiceBox Energy Storage solution \r\nthat can be controlled over a cellular, cloud-based network.","developer":"","electronics\_provider":"SolarEdge","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Funded by an anonymous donor","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2070,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2070/2036\_hobbs\_library.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2070/thumb\_2036\_hobbs\_library.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2070/partner\_2036\_hobbs\_library.png"}},"integrator\_company":"ReVision Energy","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":44.126708,"longitude":-70.891645,"master\_project\_id":null,"name":"Charlotte Hobbs Memorial Library - JuiceBox Energy","om\_contractor":"","organization":null,"owner\_1":"Charlotte Hobbs Memorial Library","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.prweb.com/releases/2016/02/prweb13234991.htm","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":6,"size\_kwh":1.73333333333333,"size\_kwh\_hours":1,"size\_kwh\_minutes":44.0,"state":"Maine","status":"Operational","street\_address":"227 Main St","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-02T01:43:14Z","updated\_at\_by\_admin":"2016-03-02T01:24:24Z","updated\_by":null,"updated\_by\_email":null,"utility":"Central Maine Power (subsidiary of Iberdrola)","utility\_type":"Investor Owned","vendor\_company":"JuiceBox Energy, Inc.","zip":"04051"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"St John's","commissioning\_on":"2022-12-01","companion":"3 MW Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@pvenergyltd.com","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"442076293366","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"PV Energy Ltd","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Antigua and Barbuda","created\_at":"2016-03-04T00:55:07Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"A 3 MW solar PV and energy storage system has been commissioned by the Government of Antigua and Barbuda (GOAB) and PV Energy Ltd. It is expected to cover almost all of the V.C. Bird International Airport of Antigua’s energy consumption.","developer":"PV Energy Ltd","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2071,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2071/antiguia.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2071/thumb\_antiguia.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2071/partner\_antiguia.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":17.1274104,"longitude":-61.846772,"master\_project\_id":null,"name":"V.C. Bird International Airport of Antigua Solar/Energy Storage Project - PV Energy Ltd","om\_contractor":"PV Energy Ltd","organization":"PV Energy LTD","owner\_1":"Government of Antigua and Barbuda","owner\_2":"PV Energy Ltd","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"NA","primary\_reference":"http://www.pvenergyltd.com/de/news/overview/6pr.html","primary\_reference1":"http://www.pv-magazine.com/news/details/beitrag/3-mw-solarstorage-system-completed-in-antigua\_100022223/#axzz3t6KkvjTN","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":3000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Antigua and Barbuda","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-27T02:42:45Z","updated\_at\_by\_admin":"2016-03-04T00:55:35Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"sun2live","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Kihei, Maui","commissioning\_on":"2021-12-31","companion":"16 kW solar PV array","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"christine@technicacommunications.com","contact\_info\_visible":false,"contact\_name":"Christine Bennett","contact\_phone":"925-330-4783","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-04T18:16:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Maui Brewing Company wanted to reduce its reliance on and the cost of utility power and instead transition to solar. It worked with installer ZeroBase to install an off-grid solar PV system supported by a massive 21 kW / 91 kWh SimpliPhi battery storage system. SimpliPhi’s batteries allow the company to extend the power of the sun’s energy far into the night. \r\n\r\nThe energy storage system is charged daily from the 16 kW solar PV array. The energy storage system powers a load panel supporting: vehicle chargers, internal and landscape lighting and emergency lighting for the facility, allowing these loads to continue operation during grid outages. At current utilization, battery capacity is discharged to 70-80% on a daily basis with peaks occurring during the day when the vehicle chargers are used at a peak capacity of 12 kW.","developer":"ZeroBase Energy, LLC","electronics\_provider":"Schneider Electric","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2073,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2073/SimpliPhi\_Maui\_Brewery\_PHI\_Energy\_Storage\_Installation.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2073/thumb\_SimpliPhi\_Maui\_Brewery\_PHI\_Energy\_Storage\_Installation.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2073/partner\_SimpliPhi\_Maui\_Brewery\_PHI\_Energy\_Storage\_Installation.jpg"}},"integrator\_company":"ZeroBase Energy, LLC","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":20.749519,"longitude":-156.437346,"master\_project\_id":null,"name":"Maui Brewing Company Microgrid","om\_contractor":"ZeroBase Energy, LLC","organization":"","owner\_1":"Maui Brewing Company","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://cleantechnica.com/2015/10/05/cleantechnica-exclusive-simpliphi-power-brings-game-changing-battery-tech-residential-storage/","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":21,"size\_kwh":4.33333333333333,"size\_kwh\_hours":4,"size\_kwh\_minutes":20.0,"state":"Hawaii","status":"Operational","street\_address":"605 Lipoa Parkway","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-23T19:30:47Z","updated\_at\_by\_admin":"2016-08-23T19:30:45Z","updated\_by":null,"updated\_by\_email":null,"utility":"Maui Electric Company (MECO)","utility\_type":"Investor Owned","vendor\_company":"SimpliPhi Power","zip":"96753"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Martigny","commissioning\_on":"2022-10-05","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Switzerland","created\_at":"2016-03-04T18:16:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":" Gildemeister energy storage GmbH is planning to install a CellCube storage system, which is based on vanadium redox flow technology, at the 'Laboratory for Physical and Analytical Electrochemistry' (LEPA) of the Lausanne Polytechnic School near Martigny. The goal of the project is to develop a charging station that can charge both battery-powered as well as hydrogen / fuel cell vehicles using electricity from renewable sources.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2074,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2074/Lusance.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2074/thumb\_Lusance.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2074/partner\_Lusance.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":46.1049798,"longitude":7.0755334,"master\_project\_id":null,"name":"Lausanne Polytechnic School-Martigny-200kW","om\_contractor":"","organization":"N/A","owner\_1":"Laboratory for Physical and Analytical Electrochemistry","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.sunwindenergy.com/photovoltaics-review/redox-flow-charging-station-to-installed-martigny","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Valais","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-05T04:42:18Z","updated\_at\_by\_admin":"2016-03-04T18:17:30Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-09-01","approval\_status":1,"city":"Ravensthorpe 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Perth.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2075,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2075/ravensthorpe.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2075/thumb\_ravensthorpe.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2075/partner\_ravensthorpe.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":-33.581611,"longitude":120.0481056,"master\_project\_id":"","name":"Western Power","om\_contractor":"","organization":null,"owner\_1":"Western Power","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://onestepoffthegrid.com.au/western-power-to-take-small-communities-off-grid-with-solar-plus-storage/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Western Australia","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-19T23:49:43Z","updated\_at\_by\_admin":"2016-04-19T23:49:43Z","updated\_by":null,"updated\_by\_email":null,"utility":"Western Power","utility\_type":"State/Municipal Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-10-06","approval\_status":1,"city":"Temecula","commissioning\_on":null,"companion":"6 MW of solar across 19 schools and the district's administrative office","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"rma@solarcity.com","contact\_info\_visible":false,"contact\_name":"Rohan Ma; David Silva","contact\_phone":"","contact\_state":"California","contact\_street\_address":"","contact\_zip":"","contractor\_1":"SolarCity","contractor\_2":"","contractor\_3":"","cost\_CAPEX":20000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-04T18:16:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"SolarCity and Temecula Valley Unified School District (TVUSD) are together installing a six megawatt solar and energy storage project across 19 schools and the district's administrative office. The project includes 18 solar carports and two ground mount solar arrays. Five of the project's sites will also be equipped with DemandLogic, SolarCity's smart energy storage system. The energy storage systems will have 2,600 kilowatt hours of energy storage capacity that can later be intelligently dispatched during times of highest demand. TVUSD will reduce energy costs by using stored electricity to lower peak demand, further contributing to the district's overall cost savings.","developer":"SolarCity","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2076,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2076/2076\_temecula\_carports.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2076/thumb\_2076\_temecula\_carports.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2076/partner\_2076\_temecula\_carports.JPG"}},"integrator\_company":"Solarcity","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":33.4936391,"longitude":-117.1483648,"master\_project\_id":null,"name":"Temecula Valley Unified School District - SolarCity","om\_contractor":"SolarCity","organization":"SolarCity","owner\_1":"SolarCity","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"It is expected to save the district more than $520,000 within the first year of operation alone, and $35 million over 25 years by providing affordable power at a discount to utility rates.","primary\_reference":"https://www.solarcity.com/newsroom/press/solarcity-and-temecula-valley-unified-school-district-announce-solar-and-energy","primary\_reference1":"","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":260,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-08T05:40:15Z","updated\_at\_by\_admin":"2016-03-05T01:33:48Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2021-12-31","approval\_status":2,"city":"Wedgefield","commissioning\_on":"2022-09-22","companion":"100 kW Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Sid.Masilamani@energymadeclean.com; research@energystoragealliance.com.au","contact\_info\_visible":false,"contact\_name":"Sid Masilamani; AESDB","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-03-04T23:43:34Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"EMC Solar Construction has been engaged to design and build a 100 kW solar PV power station with a 64 kWh battery system and a 110 kVA diesel generator at its new home base in Wedgefield, Port Hedland – an independent power system that would generate and store 100% of the electricity needs of PMMRAC’s offices, workshop and depot.","developer":"EMC Solar Construction ","electronics\_provider":"SMA","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2078,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2078/aborgini.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2078/thumb\_aborgini.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2078/partner\_aborgini.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-20.4028477,"longitude":118.5951168,"master\_project\_id":null,"name":"Pilbara Meta Maya Regional Aboriginal Corporation - EMC","om\_contractor":"","organization":null,"owner\_1":"Pilbara Meta Maya Regional Aboriginal Corporation","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://onestepoffthegrid.com.au/aboriginal-corporation-quits-wa-grid-for-cheaper-solar-and-storage/?utm\_source=Energy+Storage+Report&amp;utm\_campaign=4fac5a2b8c-ESR\_2\_10\_1210\_2\_2012&amp;utm\_medium=email&amp;utm\_term=0\_bd57f7e9aa-4fac5a2b8c-105410805","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"Resiliency","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":40,"size\_kwh":1.6,"size\_kwh\_hours":1,"size\_kwh\_minutes":36.0,"state":"Port Hedland","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-26T17:57:31Z","updated\_at\_by\_admin":"2016-05-26T17:57:31Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Energy Made Clean (EMC)","zip":""}},{"project":{"announcement\_on":"2022-09-21","approval\_status":0,"city":"San Antonio","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"OCI Solar Power","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-04T23:43:35Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Younicos Inc. has entered into an agreement with leading solar power supplier OCI Solar Power to provide a turnkey battery storage system at one of OCI Solar Power’s projects in Texas. The system will be the first integrated grid-scale solar-plus-storage project to be deployed in the ERCOT market.\r\n\r\nYounicos will be responsible for design, engineering, integration and construction of the 1 MW system, which is expected to come online in early 2016. It will also be the first use of LG Chem battery technology in ERCOT. Younicos’s own proprietary control software will manage system performance within the ERCOT market in conjunction with operation of the solar farm.","developer":"OCI Solar Power","electronics\_provider":"OCI Solar Power","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2079,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2079/Younicos\_Texas.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2079/thumb\_Younicos\_Texas.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2079/partner\_Younicos\_Texas.png"}},"integrator\_company":"OCI Solar Power","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":29.4241219,"longitude":-98.4936282,"master\_project\_id":null,"name":"Younicos-OCI Solar Power-Austin","om\_contractor":"OCI Solar Power","organization":null,"owner\_1":"OCI Solar Power","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.businesswire.com/news/home/20150921005724/en/Younicos-Achieve-Battery-Storage-Milestone-Texas#.VgnnUnpVhBc","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-08T08:44:42Z","updated\_at\_by\_admin":"2016-03-04T23:44:25Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"LG Chem","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"New Orleans","commissioning\_on":"2022-08-26","companion":"25 kW rooftop PV","construction\_on":null,"contact\_city":"Ojai","contact\_country":"United States","contact\_email":"deborahk@simpliphipower.com ","contact\_info\_visible":false,"contact\_name":"Deborah Keiser","contact\_phone":"","contact\_state":"California","contact\_street\_address":"","contact\_zip":"93023","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-04T23:43:35Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"PosiGen Solar Solutions, made a clean energy contribution to the City of New Orleans to help create a resilient City Hall. PosiGen, with partners SimpliPhi Power and Schneider Electric, is providing 25 kW of solar PV panels, energy storage and an educational monitoring display for the public. The rooftop solar installation will deliver clean power for City Hall to reduce energy costs, as well as provide backup power in the event of power disruptions or a future natural disaster.","developer":"","electronics\_provider":"Schneider Electric","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"Private/Third Party","funding\_source\_3":"Private/Third Party","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2080,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2080/new\_orleans.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2080/thumb\_new\_orleans.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2080/partner\_new\_orleans.jpg"}},"integrator\_company":"PosiGen Solar Solutions","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":29.9520292,"longitude":-90.0771233,"master\_project\_id":null,"name":"New Orleans City Hall - PosiGen / SimpliPhi Power","om\_contractor":"","organization":null,"owner\_1":"City of New Orleans","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.prnewswire.com/news-releases/new-orleans-solar-startup-partners-with-city-of-new-orleans-to-help-power-a-resilient-city-hall-300133595.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":10,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Louisiana","status":"Operational","street\_address":"1300 Perdido St","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-05T01:52:44Z","updated\_at\_by\_admin":"2016-03-05T01:52:14Z","updated\_by":null,"updated\_by\_email":null,"utility":"Entergy","utility\_type":"Investor Owned","vendor\_company":"SimpliPhi Power","zip":"70112"}},{"project":{"announcement\_on":"2022-01-30","approval\_status":0,"city":" Elmore County","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1000000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-09T00:36:18Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":".","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2081,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2081/andeerson.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2081/thumb\_andeerson.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2081/partner\_andeerson.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":42.9487655,"longitude":-115.3016211,"master\_project\_id":null,"name":"Anderson Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"GridFlex Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":".","primary\_reference":"http://gridflexenergy.com/projects/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - 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Franklin St., Ste. 2,","contact\_zip":"83702","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1000000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-09T00:36:18Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":" Federal Energy Regulatory Commission put out for notice a September 2013 application from Gridflex Energy LLC for a preliminary permit on a 250-MW pumped storage hydro project in Nevada. Under this permit, Gridflex Energy is proposing to study the feasibility of the Rose Creek Pumped Storage Project, to be located on the Rose Creek Reservoir near the town of Hawthorne in Mineral County, Nev. The sole purpose of a preliminary permit, if issued, is to grant the permit holder priority to file a license application during the permit term.\r\n\r\nThe proposed project would consist of an expansion of the existing Rose Creek Reservoir as the upper reservoir for this facility, and a new lower reservoir, joined by approximately 12,300 feet of conduit. The estimated annual generation of the Rose Creek Project would be 547.5 gigawatt-hours. The project would also consist of: a 100-foot-high by 1,720-foot-wide roller-compacted concrete or concrete-face rock-fill expansion of the existing Rose Creek Dam; a 40-foot-high by 4,100-foot-wide concrete-face rock-fill or earthen lower reservoir ring embankment; an expanded upper reservoir with a surface area of 35 acres; a lower reservoir with a surface area of 21 acres; a 2,200-foot-long, 9.6-foot-diameter concrete-lined low pressure headrace; a 9,600-foot-long, 9.6-foot-diameter concrete and steel-lined high pressure headrace; a 700-foot-long, 11.6-foot-diameter concrete-lined tailrace; a 200-foot-long by 60-foot-wide by 120-foot-high powerhouse; and a new, 20-mile-long, 230-kV transmission line connected to the 230-kV Dixie Valley Oxbow transmission line or a new, 15-mile-long, 230-kV transmission line connected to Sierra Pacific Power’s Thorne substation.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2083,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2083/rose\_creel.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2083/thumb\_rose\_creel.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2083/partner\_rose\_creel.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.4343464,"longitude":-118.4863963,"master\_project\_id":null,"name":"Rose Creek Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"GridFlex Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":".","primary\_reference":"http://www.transmissionhub.com/articles/2014/01/ferc-takes-comment-on-250-mw-nevada-pumped-storage-project.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250000,"size\_kwh":12.0,"size\_kwh\_hours":12,"size\_kwh\_minutes":0.0,"state":"Nevada","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Pumped Hydro Storage","technology\_type\_l1":"Pumped Hydro Storage","technology\_type\_l2":"Pumped Hydro","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-03T20:46:33Z","updated\_at\_by\_admin":"2016-05-03T20:46:07Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-01-30","approval\_status":0,"city":"Ely County","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1000000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-09T00:36:19Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"White Pine County could be the home for a new water pumping underground turbine, according to a report by Gridflex Energy. The project will begin doing early engineering, geotechnical, environmental and market studies in 2014, with construction planned for 2017.\r\n\r\nThe turbine would be located just outside of Ely by Gonder substation and operate entirely on Bureau of Land Management land. Water from an upper basin would be pumped down to a new artificial basin below passing through the turbine to generate energy.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2084,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2084/White\_pine.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2084/thumb\_White\_pine.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2084/partner\_White\_pine.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.927351,"longitude":-114.45312,"master\_project\_id":null,"name":"White Pine Pumped Storage","om\_contractor":"","organization":null,"owner\_1":"GridFlex Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":".","primary\_reference":"http://gridflexenergy.com/projects/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":750000,"size\_kwh":12.0,"size\_kwh\_hours":12,"size\_kwh\_minutes":0.0,"state":"Nevada","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Closed-loop Pumped Hydro Storage","technology\_type\_l1":"Closed-loop Pumped Hydro Storage","technology\_type\_l2":"Closed-loop Pumped Hydro","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-05-03T20:43:50Z","updated\_at\_by\_admin":"2016-05-03T20:43:06Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-03-01","approval\_status":0,"city":"Grossmont","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N.A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-09T01:02:32Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks has announced California’s largest school energy storage project with Grossmont Union High School District in San Diego’s east county region. The 7.4 megawatt hour energy storage deployment will be installed in 14 sites in nine district locations and is expected to save the district more than $6.4 million in reduced utility costs over the life of the project. The Green Charge energy storage system and installation came at no cost to the district through Green Charge’s performance-based Power Efficiency Agreement™ (PEA) shared savings model.","developer":"Green Charge Networks","electronics\_provider":"Green Charge Networks","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2085,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2085/green-1-253x174.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2085/thumb\_green-1-253x174.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2085/partner\_green-1-253x174.jpg"}},"integrator\_company":"Green Charge Networks","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":32.7783843,"longitude":-116.9883606,"master\_project\_id":"","name":"Grossmont Union High School District ","om\_contractor":"Green Charge Networks","organization":null,"owner\_1":"Green Charge Networks ","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Is expected to save the district more than $6.4 million in reduced utility costs over the life of the project","primary\_reference":"http://www.businesswire.com/news/home/20160301005730/en/Green-Charge-Networks-Announces-California%E2%80%99s-Largest-School","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1850,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:43:31Z","updated\_at\_by\_admin":"2016-03-09T01:04:07Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Green Charge Networks","zip":""}},{"project":{"announcement\_on":"2022-03-09","approval\_status":0,"city":"New York","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N.A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-09T18:07:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The U.S. Department of Energy announced on Tuesday support for a three-year collaboration with the Electric Power Research Institute (EPRI) and the New York Power Authority (NYPA) that includes designing a solar+storage system at Queens College of the City University of New York (CUNY), under the SunShot Initiative’s ‘Sustainable And Holistic Integration Of Energy Storage And Solar PV’ (SHINES). The 50 to 60 kW PV system would ideally be built near the FitzGerald Gymnasium, which serves as a coastal storm shelter for the community.","developer":"Alstom Grid, Clean Power Research","electronics\_provider":"PowerHub","energy\_management\_software\_provider":null,"funding\_amount\_1":3100000.0,"funding\_amount\_2":3200000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"Private/Third Party","funding\_source\_3":"","funding\_source\_details\_1":"US Department of Energy","funding\_source\_details\_2":"EPRI","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2086,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2086/queens.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2086/thumb\_queens.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2086/partner\_queens.jpg"}},"integrator\_company":"Eaton","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.7127837,"longitude":-74.0059413,"master\_project\_id":null,"name":"Queens College-CUNY PV System","om\_contractor":"","organization":null,"owner\_1":"EPRI ","owner\_2":"University of New York (CUNY) Queens College","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N.A","primary\_reference":"http://www1.cuny.edu/mu/sustainable-news/2016/01/21/queens-college-sustainable-cuny-to-host-resilient-pv-system/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"Case Western Reserve University","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":60,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"New York","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:43:16Z","updated\_at\_by\_admin":"2016-03-09T18:08:15Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"LG Chem","zip":""}},{"project":{"announcement\_on":"2021-12-24","approval\_status":1,"city":" Izu Oshima","commissioning\_on":"2022-05-05","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2016-03-09T20:30:26Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"In cooperation with TEPCO Power Grid, Inc., Hitachi has been conducting a demonstration project on its large-scale battery energy storage system on Izu Oshima Island south of Tokyo. \r\n\r\nThe island has an independent power grid and is a suitable testing site to assess the effect of introducing large amounts of energy from renewable sources on the grid. In the demonstration project, which is aiming toward the commercialization of the system, the durability of the battery energy storage system was an especially important concern. \r\n\r\nHitachi Chemical Company, Ltd., the developer of the lead batteries, has more than 10 years' experience in delivering devices to reduce power fluctuation. The company has been researching and analyzing batteries for longevity and has accumulated a knowledge base on the improvement of battery performance. In the Izu Oshima Island demonstration, Hitachi has also evaluating the durability and performance of the battery energy storage system through deterioration analysis utilizing data from Hitachi Chemical Company, Ltd. Further, Hitachi is creating control systems to monitor the operational status of the battery energy storage system for the demonstration project, not just for onsite monitoring but also for remote monitoring from the TEPCO's Oshima Power Plant at Izu Oshima Island in Tokyo and Hitachi's Omika Works in Ibaraki Prefecture. Hitachi is striving to develop control technology from research and analysis of the data for the operation of battery energy storage systems.\r\n\r\nAs Izu Oshima Island has been relying on diesel power generation, one of the purposes of this demonstration project is to evaluate the effect of using the battery energy storage system in reducing fuel costs. Hitachi is looking to find economical solutions to improve power grids in other island regions that have been relying on fossil fuels for their power supply. Hitachi is working towards optimal utilization of renewable energy and diesel power generation.","developer":"Hitachi Chemical Company","electronics\_provider":"Hitachi Chemical Company","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"New Energy and Industrial Technology Development Organization","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2087,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2087/Hitachi\_ESS.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2087/thumb\_Hitachi\_ESS.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2087/partner\_Hitachi\_ESS.jpg"}},"integrator\_company":"Hitachi Chemical Company","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.7408836,"longitude":139.3856256,"master\_project\_id":null,"name":"Izu Oshima Battery Storage System - Hitachi Chemical Company","om\_contractor":"Hitachi Chemical Company","organization":"N/A","owner\_1":"Tokyo Electric Power Company Inc (TEPCO)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.metering.com/hitachi-tepco-and-nedo-collaborate-on-energy-storage-project-in-tokyo/","primary\_reference1":"http://www.hitachi.com/rev/archive/2017/r2017\_04/pdf/P030-035\_eA01.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Frequency Regulation","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":1500,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":" Izu Oshima","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-01T01:06:07Z","updated\_at\_by\_admin":"2016-03-09T20:31:30Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Tokyo Electric Power Company (TEPCO)","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-03-09","approval\_status":1,"city":"Okotoks","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"Carly Wolff","contact\_phone":"613-996-2007","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2016-03-09T20:30:26Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Consisting of 52 houses, it's the first large-scale solar community in North America to use borehole thermal energy storage to heat homes. Since its inception, the solar system has been providing well above 90 per cent of the space heating requirements. The last few years saw efficiencies of up to 98 per cent, requiring only a two per cent top-up from natural gas. \r\n\r\nHomeowners pay a monthly fixed rate, about $70 to maintain the infrastructure. The community is revenue neutral.\r\nThe real benefit comes from the reduced greenhouse gas emissions. The space heating system cuts about four to five tonnes of greenhouse gas, per household, every year. \r\n\r\nFor more information, see http://www.dlsc.ca/ or https://www.nrcan.gc.ca/media-room/backgrounders/2012/3299. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2088,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2088/drake-landing.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2088/thumb\_drake-landing.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2088/partner\_drake-landing.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":50.7254936,"longitude":-113.9749472,"master\_project\_id":null,"name":"Drakes Landing-Solar Thermal Heating","om\_contractor":"","organization":"Office of Canada’s Minister of Natural Resources","owner\_1":"NR Canada ","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The real benefit comes from the reduced greenhouse gas emissions. The space heating system cuts about four to five tonnes of greenhouse gas, per household, every year. ","primary\_reference":"http://www.cbc.ca/news/canada/calgary/solar-thermal-energy-community-alberta-drake-landing-1.3436178","primary\_reference1":"https://www.dlsc.ca/reports/bjul15/DLSC\_SHC\_2012\_final.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1500,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Alberta","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Thermal Storage","technology\_type\_l1":"Thermal 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across its grid in regional Queensland.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2089,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2089/ergon\_bundaberg\_solar\_panels-257x300.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2089/thumb\_ergon\_bundaberg\_solar\_panels-257x300.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2089/partner\_ergon\_bundaberg\_solar\_panels-257x300.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-20.9175738,"longitude":142.7027956,"master\_project\_id":null,"name":"Ergon 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Energy storage has the potential to transform how the IESO plans and operates the power system by providing a range of real-time grid balancing services and injecting or withdrawing energy on demand","developer":"","electronics\_provider":" Baseload Power Corp","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2090,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":" Baseload Power Corp","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":43.5245705,"longitude":-79.9114577,"master\_project\_id":null,"name":"Milton-IESO","om\_contractor":"","organization":null,"owner\_1":"Baseload Power Corp ","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N.A","primary\_reference":"http://www.insidehalton.com/news-story/6135223-milton-one-of-several-new-energy-storage-project-sites/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Ontario","status":"Contracted","street\_address":"200 Chisholm Dr,","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Vanadium Redox Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-10T00:10:32Z","updated\_at\_by\_admin":"2016-05-10T00:10:32Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Gildemeister energy solutions","zip":"L9T 5E7"}},{"project":{"announcement\_on":"2022-11-23","approval\_status":0,"city":"Ontario","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"NA","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2016-03-09T21:54:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Ameresco has been awarded two Energy Storage Facility Agreements. Under each, Ameresco\r\nwill design, build, own, operate and maintain a 2 MW, 4-hour “Battery Solid” energy storage\r\nsystem facility (two facilities with a capacity of 2 MW each, for a total of 4 MW) on Newmarket\r\nHydro’s distribution grid, absorbing power during periods of excess energy supply and\r\nproviding it back to the grid when energy demand is high. In addition to providing this basic\r\n“peak shaving” function these systems will also provide on-going grid reliability and stability\r\nas more renewable energy comes on-line in the area.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2091,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"","is\_sub\_project":null,"iso":"IESO","latitude":51.253775,"longitude":-85.3232139,"master\_project\_id":null,"name":"Ameresco Canada Inc-IESO","om\_contractor":"","organization":null,"owner\_1":"Ameresco Canada","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"NA","primary\_reference":"http://www.ieso.ca/Documents/media/Backgrounder-Energy-Storage-Procurement-PhaseII.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Grid-Connected Commercial (Reliability &amp; Quality) ","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":4000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Ontario","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:38:56Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-11-24","approval\_status":0,"city":"Ontario","commissioning\_on":null,"companion":"","construction\_on":"2022-06-01","contact\_city":"","contact\_country":"","contact\_email":"pmorris@sunedison.com","contact\_info\_visible":false,"contact\_name":"R. Phelps Morris","contact\_phone":"(314) 770-7325","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2016-03-09T21:54:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"SunEdison, Inc reports it has inked a 10-year, 5 MW/20 MWh supply contract with Ontario's Independent Electricity System Operator (IESO). IESO estimates the costs related with the projects at $9 million a year, and is exploring how storage can be used to shift load and integrate renewable into the province's grid. The project is slated to get underway by mid 2017 for completion by the year end. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2092,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"","is\_sub\_project":null,"iso":"IESO","latitude":51.253775,"longitude":-85.3232139,"master\_project\_id":null,"name":"SunEdison Canada Origination LP-IESO","om\_contractor":"","organization":null,"owner\_1":"SunEdison","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"NA","primary\_reference":"http://lcenergyreports.com/articles/visitor.php?keyword=IESO","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":5000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Ontario","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:38:47Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-11-25","approval\_status":0,"city":"Ontario","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N.A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2016-03-09T21:54:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"NextEra Energy Canada’s Parry energy storage project will utilize lithium ion\r\nbatteries to store energy produced during off-peak demand periods in order to re-inject that\r\nelectricity into the system during times of peak demand, as instructed by the IESO. Each project\r\nwill be designed to deliver up to 2,000 kilowatts of power for up to four hours. The projects are\r\nlocated in close proximity to existing distribution facilities where they will connect to the local\r\ndistribution grid. In addition to the batteries, the projects will also include the required\r\ninverters, transformers, and associated power equipment to efficiently and safely move\r\nelectricity on or off the grid.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2093,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"","is\_sub\_project":null,"iso":"IESO","latitude":51.253775,"longitude":-85.3232139,"master\_project\_id":null,"name":"NextEra Canada Development & Acquisitions, Inc.- Parry ","om\_contractor":"","organization":null,"owner\_1":"NextEra Energy Canada","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"NA","primary\_reference":"http://www.ieso.ca/Documents/media/Backgrounder-Energy-Storage-Procurement-PhaseII.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Ontario","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:37:01Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-11-26","approval\_status":0,"city":"Ontario","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N.A","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2016-03-09T21:54:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"NextEra Energy Canada’s Elmira energy storage project will utilize lithium ion\r\nbatteries to store energy produced during off-peak demand periods in order to re-inject that\r\nelectricity into the system during times of peak demand, as instructed by the IESO. Each project\r\nwill be designed to deliver up to 2,000 kilowatts of power for up to four hours. The projects are\r\nlocated in close proximity to existing distribution facilities where they will connect to the local\r\ndistribution grid. In addition to the batteries, the projects will also include the required\r\ninverters, transformers, and associated power equipment to efficiently and safely move\r\nelectricity on or off the grid.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2094,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"","is\_sub\_project":null,"iso":"IESO","latitude":51.253775,"longitude":-85.3232139,"master\_project\_id":null,"name":"NextEra Canada Development & Acquisitions, Inc.-Elmira","om\_contractor":"","organization":null,"owner\_1":"NextEra Energy Canada","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"NA","primary\_reference":"http://www.ieso.ca/Documents/media/Backgrounder-Energy-Storage-Procurement-PhaseII.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Ontario","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Iron Phosphate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T20:36:40Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Goldthwaite","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"akrinsky@invenergyllc.com","contact\_info\_visible":false,"contact\_name":"Alissa Krinsky","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-09T21:54:51Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"GE and Invenergy announced today the purchase of the first 2.5-120 brilliant wind turbines in the world. Invenergy has ordered three units as part of an 86-turbine deal with GE for its Mills County, Texas, wind farm. he 2.5-120 is the first wind turbine to incorporate short-term battery storage as part of the complete turbine package. Integrating the battery into the wind turbine allows wind farm operators to reap the benefits of energy storage without the high costs of farm-level battery storage installation. This revolutionary design integrates GE’s advanced Durathon Battery technology with three software applications (apps). The resulting intelligent system enables power producers and the wind turbines themselves to make data-informed decisions and provide short-term predictable power.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Debt","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Morgan Stanley ","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2095,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2095/gold.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2095/thumb\_gold.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2095/partner\_gold.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":31.4498855,"longitude":-98.5708763,"master\_project\_id":null,"name":"Goldthwaite Storage-Invenergy","om\_contractor":"","organization":"Invenergy LLC","owner\_1":"Invenergy LLC","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N.A","primary\_reference":"https://invenergyllc.com/news/invenergy-commences-full-commercial-operation-of-goldthwaite-wind-energy-center","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Ramping ","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":600,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium-nickel-chloride Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-23T18:02:31Z","updated\_at\_by\_admin":"2016-03-09T21:56:17Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"84 Jangseo-ri, Yangseong-myeon, Anseong-si","commissioning\_on":"2022-07-10","companion":"","construction\_on":"2022-09-01","contact\_city":"","contact\_country":"","contact\_email":"08101876@kepco.co.kr; hmlee@kokam.com","contact\_info\_visible":false,"contact\_name":"Ji-Han Cha; Hae Min Lee","contact\_phone":"; +82313620131","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2016-03-14T06:12:46Z","created\_by\_id":375,"debt\_investor":"","decommissioning\_on":null,"desc":"KEPCO established a plan to build 500 MW of energy storage systems (ESS) for frequency regulation in stages over four years (2014-2017). \r\n\r\nIn 2014, for the first stage, KEPCO successfully installed 52 MW of ESS for frequency regulation across two sites, 28 MW at West-Ansung Substation and 24 MW at Shin-Yongin Substation.\r\n\r\nKEPCO installed 28 MW (7 MWh) of Li-ion battery based energy storage for frequency regulation. Kokam provided Lithium-titanate (LTO) based Lithium Polymer battery energy storage for 16 MW / 5.4 MWh and LG Chem provided 12 MW. The ESS is currently in commercial operation as of June 2015 (Note: System testing took place before commercial operation from January 2015 to June 2015).\r\n\r\nhttp://kokam.com/adv/news.php\r\n\r\nhttp://home.kepco.co.kr/kepco/main.do","developer":"Korea Electric Power Corporation (KEPCO)","electronics\_provider":"LS IS (Kokam ESS), Woojin (LG Chem ESS)","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2096,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2096/West-Ansung\_Substation.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2096/thumb\_West-Ansung\_Substation.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2096/partner\_West-Ansung\_Substation.jpg"}},"integrator\_company":"Korea Electric Power Corporation (KEPCO)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.0969412,"longitude":127.2218324,"master\_project\_id":null,"name":"West-Ansung (Seo-Anseong) Substation ESS Pilot Project - 28 MW ESS - KEPCO / Kokam / LG Chem","om\_contractor":"","organization":"","owner\_1":"Korea Electric Power Corporation (KEPCO)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.koreaherald.com/view.php?ud=20150710000817","primary\_reference1":"http://kokam.com/ess-3/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transmission Congestion Relief","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":28000,"size\_kwh":3.2,"size\_kwh\_hours":3,"size\_kwh\_minutes":12.0,"state":"Gyeonggi-do","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-25T23:41:20Z","updated\_at\_by\_admin":"2016-07-01T21:37:50Z","updated\_by":null,"updated\_by\_email":null,"utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Public Owned","vendor\_company":"Kokam (16 MW), LG Chem (12 MW)","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"218-1 Jigok-dong, Giheung-gu","commissioning\_on":"2022-07-01","companion":"","construction\_on":"2022-09-01","contact\_city":"","contact\_country":"","contact\_email":"08101876@kepco.co.kr","contact\_info\_visible":false,"contact\_name":"Cha Ji Han","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2016-03-14T06:59:33Z","created\_by\_id":375,"debt\_investor":"","decommissioning\_on":null,"desc":"KEPCO established a plan to build 500 MW of energy storage systems (ESS) for frequency regulation in stages over four years (2014-2017). \r\nIn 2014, for the first stage, KEPCO successfully installed 52 MW of ESS for frequency regulation across two sites, 28 MW at West-Ansung Substation and 24 MW at Shin-Yongin Substation. \r\nKEPCO installed 24 MW (12 MWh) of Li-ion battery based energy storage system for frequency regulation.\r\nhttp://home.kepco.co.kr/kepco/main.do\r\n\r\n","developer":"","electronics\_provider":"EN Tech, LG CNS","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2097,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2097/\_\_\_.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2097/thumb\_\_\_\_.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2097/partner\_\_\_\_.jpg"}},"integrator\_company":"Korea Electric Power Corporation (KEPCO)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.2437487,"longitude":127.1462838,"master\_project\_id":null,"name":"Shin-Yongin Substation ESS Pilot Project - 24 MW ESS - KEPCO / Samsung SDI","om\_contractor":"","organization":null,"owner\_1":"Korea Electric Power Corporation (KEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://portal.koreascience.kr/article/articleresultdetail.jsp?no=DHJGHA\_2015\_v64n2\_57","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transmission Congestion Relief","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":24000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Yongin-si, Gyeonggi-do","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-03T20:39:30Z","updated\_at\_by\_admin":"2016-04-08T22:37:20Z","updated\_by":null,"updated\_by\_email":null,"utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Public Owned","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":"2022-07-02","approval\_status":1,"city":"86 Yongbok-ri","commissioning\_on":"2022-03-07","companion":"","construction\_on":"2022-08-31","contact\_city":"","contact\_country":"","contact\_email":"08101876@kepco.co.kr; sjyoon@kokam.com","contact\_info\_visible":false,"contact\_name":"Ji-Han Cha (KEPCO); Seung Ju Yoon (Kokam)","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2016-03-16T01:57:04Z","created\_by\_id":375,"debt\_investor":"","decommissioning\_on":null,"desc":"KEPCO installed 24 MW (9 MWh) of Li-ion battery based energy storage system for frequency regulation in 2015. At the time of commissioning, Shin-Gimje Substation was the largest capacity Lithium Nickel Manganese Cobalt energy storage used for frequency regulation in the world.","developer":"","electronics\_provider":"Woojin Industrial Systems","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2100,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2100/kokam24.PNG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2100/thumb\_kokam24.PNG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2100/partner\_kokam24.PNG"}},"integrator\_company":"Korea Electric Power Corporation (KEPCO)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.7590321,"longitude":127.0021437,"master\_project\_id":null,"name":"Shin-Gimje Substation ESS - 24 MW ESS - KEPCO / Kokam","om\_contractor":"","organization":"","owner\_1":"Korea Electric Power Corporation (KEPCO)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://kokam.com/kokams-56-megawatt-energy-storage-project-features-worlds-largest-lithium-nmc-energy-storage-system-frequency-regulation/","primary\_reference1":"http://kokam.com/ess-3/?PHPSESSID=81f04740475df4e1ffc1685f61b09f17","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transmission Congestion Relief","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":24000,"size\_kwh":0.375,"size\_kwh\_hours":0,"size\_kwh\_minutes":22.5,"state":"Geumgu-myeon, Gimje-si","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Nickel Manganese Cobalt Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-25T22:27:02Z","updated\_at\_by\_admin":"2016-07-01T21:32:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Public Owned","vendor\_company":"Kokam","zip":""}},{"project":{"announcement\_on":"2022-07-02","approval\_status":2,"city":"Daeui-myoen","commissioning\_on":"2022-07-01","companion":"","construction\_on":"2022-08-31","contact\_city":"","contact\_country":"","contact\_email":"08101876@kepco.co.kr","contact\_info\_visible":false,"contact\_name":"Ji-Han Cha","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2016-03-16T04:22:06Z","created\_by\_id":375,"debt\_investor":"","decommissioning\_on":null,"desc":"KEPCO installed 24 MW (6 MWh) of Li-ion battery based energy storage system for frequency regulation in 2015.\r\nNote: System testing before commercial operation from January 1, 2022 to June 30, 2016.","developer":"","electronics\_provider":"LG CNS","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":null,"hidden":false,"id":2103,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2103/\_\_\_\_\_.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2103/thumb\_\_\_\_\_\_.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2103/partner\_\_\_\_\_\_.jpg"}},"integrator\_company":"Korea Electric Power Corporation (KEPCO)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":null,"longitude":null,"master\_project\_id":null,"name":"Uiryeong Substation ESS - 24 MW ESS - KEPCO / LG CNS","om\_contractor":"","organization":null,"owner\_1":"Korea Electric Power Corporation (KEPCO)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://home.kepco.co.kr/kepco/main.do","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transmission Congestion Relief","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":24000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Uiryeong-gun, Gyeongsangnam-do","status":"Operational","street\_address":"130 Cheongok-ri","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-07-01T21:36:00Z","updated\_at\_by\_admin":"2016-07-01T21:36:00Z","updated\_by":null,"updated\_by\_email":null,"utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Public Owned","vendor\_company":"LG CNS","zip":""}},{"project":{"announcement\_on":"2022-02-12","approval\_status":1,"city":"Livermore","commissioning\_on":null,"companion":" 2.35 MW solar array","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"richb@pbworld.com; aloke.gupta@imergy.com; andrew@geli.net;","contact\_info\_visible":false,"contact\_name":"Bruce Rich (Parsons Brinckerhoff); Aloke Gupta (Imergy); Andrew Tanner (GELI); ","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Parsons Brinckerhoff","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-17T20:11:55Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Las Positas College announced that they will participate in a microgrid project funded by a $1.5 million grant from the California Energy Commission to enable the Chabot-Las Positas Community College District to integrate renewable energy sources into its operations, curb peak power and achieve greater energy independence. \r\n\r\nThe District will install Imergy Power Systems' ESP30 series institutional scale vanadium redox flow batteries with a total capacity of 250 kilowatt / 1 megawatt-hour as part of the microgrid, which will be managed by the Geli's Energy Operating System and Energy Management applications. The energy storage system, to be installed at Las Positas College in Livermore, will enhance an existing 2.35 MW solar array that generates 55% of the energy needed at the campus, 3,200 ton-hours of ice thermal storage, and ten Level II EV charging stations to form a smart microgrid, capturing approximately $75,000 in annual energy savings for the District. \r\n\r\nPart of the Commission's $26.5 million Electric Program Investment Charge (EPIC) program to develop a roadmap for energy smart communities, the project is designed to demonstrate how microgrids can help colleges and universities gain greater control over their energy consumption and costs while maintaining security and safety. Imergy's technology will be used to reduce peak power, balance energy loads, and \"island\" individual applications for greater reliability and resiliency, among other applications. Las Positas College consists of 435,000 square feet of facilities and includes a 15,000 square foot maintenance and operations complex designated as an emergency response facility by the Alameda County Emergency Preparedness Agency.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":1500000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"California Energy Commission (CEC) Electric Program Investment Charge (EPIC) Program","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2109,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2109/las\_positas\_college.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2109/thumb\_las\_positas\_college.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2109/partner\_las\_positas\_college.jpg"}},"integrator\_company":"GELI","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":37.7108595,"longitude":-121.8004765,"master\_project\_id":"","name":"Las Positas College EPIC Microgrid - Imergy / GELI","om\_contractor":"","organization":null,"owner\_1":"Chabot-Las Positas Community College District","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Approximately $75,000 in annual energy savings for the District.","primary\_reference":"http://www.imergy.com/press-releases/2015/2/chabot-las-positas-community-college-district-imergy-power-systems-and-geli-awarded-cec-grant-to-provide-energy-storage-technology-for-las-positas-college-microgrid-project","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"Onsite Renewable Generation Shifting","service\_use\_case\_6":"Resiliency","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Announced","street\_address":"3000 Campus Hill Dr","systems\_integration":"","technology\_classification":"","technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Flow Battery","technology\_type\_l2":"Vanadium Redox Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-29T18:49:07Z","updated\_at\_by\_admin":"2016-06-29T18:49:07Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Imergy Power Systems","zip":"94551"}},{"project":{"announcement\_on":"2022-03-17","approval\_status":2,"city":"Lewes","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"alex.rios@alevo.com; Jeff.Gates@alevo.com; tom.oleary@alevo.com","contact\_info\_visible":false,"contact\_name":"Alex Rios; Jeff Gates; Tom OLeary (Alevo Analytics)","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-17T22:31:24Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Alevo Group announced an 8MW/4 MWh energy storage system in Lewes, Delaware. Alevo has worked closely with the City of Lewes and the Lewes Board of Public Works (BPW) on the project, which will involve the repurposing of a retired oil-fired generator building once operated by the BPW. Once complete, the deployment will be the largest of its kind in the State of Delaware.\r\n\r\n Alevo will be able to sell ancillary services into the PJM regulation market, while providing the city improved power quality, a more reliable electric grid system and the ability to shave peak demand for its customers. Lewes has a significant renewable energy presence on their distribution system - both a 1.5 MW wind turbine situated at the University of Delaware and one of the highest per capita installations of solar - which can cause upward pressures for demand costs to the system. The installation of the 8 MW battery will provide a significant tool to manage capacity charges, peak demands and transmission charges.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2110,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2110/lewes\_delaware\_alevo.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2110/thumb\_lewes\_delaware\_alevo.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2110/partner\_lewes\_delaware\_alevo.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":38.7745565,"longitude":-75.1393498,"master\_project\_id":null,"name":"Lewes BPW / Alevo - 8 MW - (Lewes, Delaware)","om\_contractor":"","organization":null,"owner\_1":"Alevo Group","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.businesswire.com/news/home/20160317005667/en/Alevo-Deploy-Largest-Energy-Storage-System-Delaware","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":8000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Delaware","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-03-23T22:14:39Z","updated\_at\_by\_admin":"2016-03-23T22:14:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"Lewes Board of Public Works (BPW)","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Capljina - Svitava","commissioning\_on":"2022-11-25","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"Bosnia and Herzegovina","contact\_email":"ephzhb@ephzhb.ba","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Bosnia and Herzegovina","created\_at":"2016-03-18T03:32:37Z","created\_by\_id":377,"debt\_investor":"","decommissioning\_on":null,"desc":"The PSPP Čapljina is located in Herzegovina - Neretva Canton.It was put into operation on November 25, 2022 and is a unique plant in the system of JP Elektroprivreda HZ HB d.d. Mostar for many reasons. It was the first pumped storage power plant in the former Yugoslavia. With its two 240 MVA motor-generators it contributes to reliability of the power system as well as solving the peak load problem.\r\n\r\nNumber of units: 2\r\nInstalled capacity: 420 MW\r\nInstalled discharge: 225m3/s\r\nTechnical minimum capacity: 140 MW\r\nAverage annual energy output: 620 GWh\r\nEnergy production from 1m3 of water: 0.52 kWh\r\nWater quantity needed for 1kWh: 1.93m3\r\nGenerator set efficiency: 74 %\r\nEnergy value of reservoir: 3.4 GWh\r\nReservoir storage capacity: 7.12 hm3\r\nUtilizable reservoir volume: 6.5 hm3\r\nGross head - maximum: 229.2 m\r\nGross head - minimum: 227.7 m ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2111,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2111/che\_capljina\_poduzni\_presjek.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2111/thumb\_che\_capljina\_poduzni\_presjek.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2111/partner\_che\_capljina\_poduzni\_presjek.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":43.0166042,"longitude":17.811317,"master\_project\_id":null,"name":"Crpna Hidroelektrana Capljina - Čapljina Pumped Hydro Storage - (Bosnia and Herzegovina)","om\_contractor":"","organization":null,"owner\_1":"JP Elektroprivreda HZ HB d.d. 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Concrete slabs will be installed behind the Student Services Building at the Kentfield Campus and near the Main Building at the Indian Valley Campus.\r\n\r\nVice President Greg Nelson expects installation to begin in mid-May and last until the end of June. Once the stationary batteries are operational, Nelson estimates the cost savings to be anywhere from $100,000-$150,000 annually for the college.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"5300000","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2112,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2112/tesla\_kentfield.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2112/thumb\_tesla\_kentfield.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2112/partner\_tesla\_kentfield.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.955595,"longitude":-122.5496,"master\_project\_id":null,"name":"College of Marin Kentfield Campus - Tesla","om\_contractor":"","organization":"","owner\_1":"Tesla Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"$100,000 - $150,000 annual savings","primary\_reference":"http://www.prnewswire.com/news-releases/college-of-marin-announces-partnership-with-tesla-motors-300075824.html","primary\_reference1":"https://electrek.co/2016/05/17/tesla-energy-powerpack-college-of-marin/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2400,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"835 College Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T19:26:37Z","updated\_at\_by\_admin":"2016-05-18T19:18:13Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":"94904"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Shin-Gimje","commissioning\_on":"2022-01-01","companion":null,"construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":null,"contact\_info\_visible":null,"contact\_name":"Korea, South","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":null,"contractor\_2":null,"contractor\_3":null,"cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2016-03-20T12:50:59Z","created\_by\_id":379,"debt\_investor":null,"decommissioning\_on":null,"desc":"Frequency regulation is the most demanding application for energy storage system, and requires the kind of advanced battery technologies. \nKEPCO established a plan in stages to build a 500MW ESS for frequency regulation over four years(2014-2017). \nIn 2015, for the second stage, KEPCO successfully installed ESS for frequency regulation, the largest of its kind in the world (184MW).\nKokam delivered 24MW/ 9.6MWh energy storage system in Shin-Gimje Substation with the latest Ultra High Power NMC technology based cells, capable of achieving 4C/4C charge/discharge operation at the container level. The ESS is currently in trial operation as of January 2016.","developer":"Korea Electric Power Corporation (KEPCO)","electronics\_provider":"Woojin Industrial System","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":82313620131.0,"funding\_source\_1":null,"funding\_source\_2":null,"funding\_source\_3":"hae min Lee","funding\_source\_details\_1":null,"funding\_source\_details\_2":null,"funding\_source\_details\_3":"hmlee@kokam.com","gmaps":null,"hidden":false,"id":2115,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"kepco","integrator\_fax":null,"is\_multi\_system":null,"is\_sub\_project":null,"iso":"N/A","latitude":null,"longitude":null,"master\_project\_id":null,"name":"2015 Frequency Regulation ESS Project 1","om\_contractor":null,"organization":null,"owner\_1":"Korea Electric Power Corporation (KEPCO)","owner\_2":null,"owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://kokam.com/adv/news.php","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":null,"research\_desc":"Gyeonggi","research\_institution":"Suwon","research\_institution\_link":null,"service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":null,"service\_use\_case\_3":null,"service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":24000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Jeonbuk","status":"Operational","street\_address":null,"systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium Ion Battery","technology\_type\_l1":"Lithium Ion Battery","technology\_type\_l2":"Lithium Ion Battery","technology\_type\_l3":"Lithium Ion Battery","updated\_at":"2017-10-26T02:58:50Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Korea Electric Power Corporation (KEPCO)","utility\_type":"Federally Owned","vendor\_company":"Kokam","zip":""}},{"project":{"announcement\_on":"2022-07-01","approval\_status":1,"city":"Schwabmuenchen","commissioning\_on":"2022-03-14","companion":"","construction\_on":"2022-02-24","contact\_city":"Brilon-Hoppecke","contact\_country":"Germany","contact\_email":"Rolf.Werkmeister@Hoppecke.com","contact\_info\_visible":false,"contact\_name":"Rolf Werkmeister","contact\_phone":"+49 231 4750201","contact\_state":"NRW","contact\_street\_address":"Bontkirchener Str. 1","contact\_zip":"59929","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2016-03-22T10:40:56Z","created\_by\_id":381,"debt\_investor":"","decommissioning\_on":null,"desc":"For better integration of renewable energies in the distribution intelligent solutions are increasingly in demand. RWE Germany has launched the project \"smart operator\" to develop \"intelligent\" solutions in the low voltage network in August 2012. \r\n250 test households in the communities Kisselbach and Wincheringen (Rheinland Pfalz) and Wertachau (Bavaria) are connected to an intelligent low-voltage grid.\u000B\u000BAs a \"smart operator\" designated control box detects the current condition of the network and optimizes automatically the current flow. It also establishes a communication interface to the test households. \r\nThe use of selected, \"smart\" appliances are aligned by the “smart operator” in a way that as much electricity from renewable sources is used.\u000B\u000BCaused by the results of this project the expansion of low-voltage systems will be optimised.\r\n","developer":"","electronics\_provider":"Gustav Klein","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2117,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Horlemann GmbH & Co KG","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.1800343,"longitude":10.7557069,"master\_project\_id":null,"name":"Smart Operator","om\_contractor":"","organization":null,"owner\_1":"RWE Deutschland AG","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"well working system all customer requests have been satisfied","primary\_reference":"http://www.hoppecke.com","primary\_reference1":null,"projected\_lifetime":"3.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Distribution upgrade due to solar","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"Transportable Transmission/Distribution Upgrade Deferral","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":75,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Bavaria","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-10T00:07:08Z","updated\_at\_by\_admin":"2016-05-10T00:07:08Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"HOPPECKE Batterien GmbH & Co KG, Germany","zip":"86830"}},{"project":{"announcement\_on":"2022-07-01","approval\_status":1,"city":"Kisselbach","commissioning\_on":"2022-05-01","companion":"","construction\_on":"2022-04-01","contact\_city":"Brilon-Hoppecke","contact\_country":"Germany","contact\_email":"Rolf.Werkmeister@Hoppecke.com","contact\_info\_visible":false,"contact\_name":"Rolf Werkmeister","contact\_phone":"+49 231 4750201","contact\_state":"NRW","contact\_street\_address":"Bontkirchener Str. 1","contact\_zip":"59929","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2016-03-22T13:26:39Z","created\_by\_id":381,"debt\_investor":"","decommissioning\_on":null,"desc":"\r\nFor better integration of renewable energies in the distribution intelligent solutions are increasingly in demand. RWE Germany has launched the project \"smart operator\" to develop \"intelligent\" solutions in the low voltage network in August 2012. \r\n250 test households in the communities Kisselbach and Wincheringen (Rheinland Pfalz) and Wertachau (Bavaria) are connected to an intelligent low-voltage grid.\u000B\u000BAs a \"smart operator\" designated control box detects the current condition of the network and optimizes automatically the current flow. It also establishes a communication interface to the test households. \r\nThe use of selected, \"smart\" appliances are aligned by the “smart operator” in a way that as much electricity from renewable sources is used.\u000B\u000BCaused by the results of this project the expansion of low-voltage systems will be optimised","developer":"","electronics\_provider":"Gustav Klein","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2118,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2118/P1040897.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2118/thumb\_P1040897.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2118/partner\_P1040897.JPG"}},"integrator\_company":"Horlemann GmbH & Co KG","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":50.0513659,"longitude":7.6096502,"master\_project\_id":null,"name":"Smart Operator Kisselbach Pb","om\_contractor":"","organization":null,"owner\_1":"RWE Deutschland AG","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"System is well running. All customer requirements are satisfied","primary\_reference":"http://www.hoppecke.com","primary\_reference1":null,"projected\_lifetime":"3.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":75,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Rheinland-Pfalz","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-10T00:06:03Z","updated\_at\_by\_admin":"2016-05-10T00:06:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"HOPPECKE Batterien GmbH & Co KG, Germany","zip":"56291"}},{"project":{"announcement\_on":"2022-04-01","approval\_status":0,"city":"Wincheringen","commissioning\_on":"2021-12-18","companion":"","construction\_on":"2022-10-01","contact\_city":"Brilon-Hoppecke","contact\_country":"Germany","contact\_email":"Rolf.Werkmeister@Hoppecke.com","contact\_info\_visible":false,"contact\_name":"Rolf Werkmeister","contact\_phone":"0049 231 4750201","contact\_state":"NRW","contact\_street\_address":"Bontkirchener Str. 1","contact\_zip":"59929","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2016-03-22T13:49:35Z","created\_by\_id":381,"debt\_investor":"","decommissioning\_on":null,"desc":"\r\nFor better integration of renewable energies in the distribution intelligent solutions are increasingly in demand. RWE Germany has launched the project \"smart operator\" to develop \"intelligent\" solutions in the low voltage network in August 2012. \r\n250 test households in the communities Kisselbach and Wincheringen (Rheinland Pfalz) and Wertachau (Bavaria) are connected to an intelligent low-voltage grid.\u000B\u000BAs a \"smart operator\" designated control box detects the current condition of the network and optimizes automatically the current flow. It also establishes a communication interface to the test households. \r\nThe use of selected, \"smart\" appliances are aligned by the “smart operator” in a way that as much electricity from renewable sources is used.\u000B\u000BCaused by the results of this project the expansion of low-voltage systems will be optimised.\r\n","developer":"","electronics\_provider":"Gustav Klein","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2119,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2119/P1050067.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2119/thumb\_P1050067.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2119/partner\_P1050067.JPG"}},"integrator\_company":"Horlemann GmbH & Co KG","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":49.6087698,"longitude":6.4277962,"master\_project\_id":null,"name":"Smart Operator Wincheringen LiOn","om\_contractor":"","organization":null,"owner\_1":"RWE Deutschland AG","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"System is running well. All customer requirements are satisfied.","primary\_reference":"http://www.hoppecke.com","primary\_reference1":null,"projected\_lifetime":"3.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":30,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Rheinland-Pfalz","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-10T00:07:23Z","updated\_at\_by\_admin":"2016-05-10T00:07:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"HOPPECKE Batterien GmbH & Co KG, Germany","zip":"54457"}},{"project":{"announcement\_on":"2022-02-01","approval\_status":0,"city":"Wincheringen","commissioning\_on":"2022-12-01","companion":"","construction\_on":"2022-09-01","contact\_city":"Brilon-Hoppecke","contact\_country":"Germany","contact\_email":"Rolf.Werkmeister@Hoppecke.com","contact\_info\_visible":false,"contact\_name":"Rolf Werkmeister","contact\_phone":"+49 231 4750201","contact\_state":"NRW","contact\_street\_address":"Bontkirchener Str. 1","contact\_zip":"59929","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2016-03-22T14:06:42Z","created\_by\_id":381,"debt\_investor":"","decommissioning\_on":null,"desc":"For better integration of renewable energies in the distribution intelligent solutions are increasingly in demand. RWE Germany has launched the project \"smart operator\" to develop \"intelligent\" solutions in the low voltage network in August 2012. \r\n250 test households in the communities Kisselbach and Wincheringen (Rheinland Pfalz) and Wertachau (Bavaria) are connected to an intelligent low-voltage grid.\u000B\u000BAs a \"smart operator\" designated control box detects the current condition of the network and optimizes automatically the current flow. It also establishes a communication interface to the test households. \r\nThe use of selected, \"smart\" appliances are aligned by the “smart operator” in a way that as much electricity from renewable sources is used.\u000B\u000BCaused by the results of this project the expansion of low-voltage systems will be optimised.\r\n","developer":"","electronics\_provider":"Gustav Klein","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2120,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2120/P1040897.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2120/thumb\_P1040897.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2120/partner\_P1040897.JPG"}},"integrator\_company":"Horlemann GmbH & Co KG","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":49.6087698,"longitude":6.4277962,"master\_project\_id":null,"name":"Smart Operator Wincheringen Pb","om\_contractor":"","organization":null,"owner\_1":"RWE Deutschland AG","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"System is running well. All customer requirements are satisfied.","primary\_reference":"http://www.hoppecke.com","primary\_reference1":null,"projected\_lifetime":"3.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":15,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Rheinland-Pfalz","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-10T00:05:44Z","updated\_at\_by\_admin":"2016-05-10T00:05:44Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"HOPPECKE Batterien GmbH & Co KG, Germany","zip":"54457"}},{"project":{"announcement\_on":"2022-03-21","approval\_status":1,"city":"Ponce","commissioning\_on":null,"companion":"Coto Laurel 10 MW PV farm","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"jim.mcdowall@saftbatteries.com","contact\_info\_visible":false,"contact\_name":"Jim McDowall","contact\_phone":"","contact\_state":"New York","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-25T19:25:08Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"PREPA will install a large-scale battery park at the Coto Laurel 10 MW PV farm, to help integrate the farm’s output and other renewables.\r\n\r\nLocal developer Windmar will install the batteries, supplied by Saft. PREPA needs to get 20% of its electricity from renewable sources by 2035 to meet a government-mandated Renewable Portfolio Standard (RPS).\r\n\r\nLithium-ion batteries from Saft’s Intensium Max 3.0 range will be used on the project, housed in 20 ft containers. They will provide ramp-rate control and frequency regulation – both grid-balancing services – helping integrate variability from renewables and able to replace the ‘must-run’ use of thermal generation to maintain grid frequency. \r\n\r\nhttp://www.altenergymag.com/article/2016/03/lithium-ion-energy-storage-for-pv-system-in-puerto-rico/23209","developer":"Windmar","electronics\_provider":"Saft","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2121,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Saft","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":18.004089,"longitude":-66.5842402,"master\_project\_id":null,"name":"PREPA Coto Laurel ESS","om\_contractor":"","organization":null,"owner\_1":"Puerto Rico Electric Power Authority (PREPA)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.pv-tech.org/news/pv-farm-in-puerto-rico-adds-10mw-of-safts-grid-balancing-batteries","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Ramping ","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":5500,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Puerto Rico","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-11T21:50:27Z","updated\_at\_by\_admin":"2016-04-11T21:50:27Z","updated\_by":null,"updated\_by\_email":null,"utility":"Puerto Rico Electric Power Authority (PREPA)","utility\_type":"Investor Owned","vendor\_company":"Saft","zip":""}},{"project":{"announcement\_on":"2022-01-02","approval\_status":1,"city":"Beverly","commissioning\_on":null,"companion":"232 kW Solar Array","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"akrishnan@mapc.org ","contact\_info\_visible":false,"contact\_name":"Ani Krishnan","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":526000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-31T17:09:09Z","created\_by\_id":360,"debt\_investor":"","decommissioning\_on":null,"desc":"The Metropolitan Area Planning Council in conjunction with the city of Beverly will install a 232 kW PV array with 77 kWh of battery storage, which will power four critical facilities at the Beverly Cache Site in the event of a power outage. This site serves as a Regional Equipment Cache for the Northeast Massachusetts Homeland Security Region, as the location of the Beverly, MA Civil Defense Department, and as the home base of Massachusetts Task Force 1, one of the nation's 28 FEMA Urban Search and Rescue Teams.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":526000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2122,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2122/BeverlyMA.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2122/thumb\_BeverlyMA.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2122/partner\_BeverlyMA.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.5878335,"longitude":-70.9045107,"master\_project\_id":null,"name":"Beverly Regional Cache Site (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"Massachusetts Department of Energy Resources","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.cesa.org/projects/energy-storage-technology-advancement-partnership/energy-storage-news/newsitem/massachusetts-announces-second-round-of-resilient-power-project-grants","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":39,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"Airport Road","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T22:11:06Z","updated\_at\_by\_admin":"2016-04-06T22:11:06Z","updated\_by":null,"updated\_by\_email":null,"utility":"National Grid","utility\_type":"","vendor\_company":"","zip":"01915"}},{"project":{"announcement\_on":"2022-01-02","approval\_status":1,"city":"South Yarmouth","commissioning\_on":null,"companion":"1,356 kW solar PV","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"largo@cvecinc.org","contact\_info\_visible":false,"contact\_name":"Liz Argo","contact\_phone":"","contact\_state":"Massachusetts","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1480000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-31T17:44:03Z","created\_by\_id":360,"debt\_investor":"","decommissioning\_on":null,"desc":"1,356 kW solar PV with 512 kW battery backup to supply resilient power to the Dennis Yarmouth Regional High School, a regional emergency shelter that also serves as a food preparation and distribution center for the community. The battery would also be used to reduce demand charges through peak load shedding at the school during regular, non-emergency operation.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":1480000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2123,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2123/DYHS.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2123/thumb\_DYHS.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2123/partner\_DYHS.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":41.6775776,"longitude":-70.1932971,"master\_project\_id":null,"name":"Dennis-Yarmouth High School Regional Shelter (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"Cape & Vineyard Electric Cooperative, Inc","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.cesa.org/projects/energy-storage-technology-advancement-partnership/energy-storage-news/newsitem/massachusetts-announces-second-round-of-resilient-power-project-grants","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":512,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"210 Station Ave","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T23:18:10Z","updated\_at\_by\_admin":"2016-04-06T23:18:10Z","updated\_by":null,"updated\_by\_email":null,"utility":"Cape & Vineyard Electric Cooperative, Inc","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"","zip":"02264"}},{"project":{"announcement\_on":"2022-01-02","approval\_status":1,"city":"Greenfield","commissioning\_on":null,"companion":"207kW solar PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"energy@greenfield-ma.gov","contact\_info\_visible":false,"contact\_name":"Carole Collins","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":367310.0,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-31T18:03:49Z","created\_by\_id":360,"debt\_investor":"","decommissioning\_on":null,"desc":"The Town’s new high school (LEED certified) is being constructed to accept a 207kW PV array on the roof as well as employ energy management systems that are already programmed to serve identified critical areas in the event of a power outage. This facility is identified as a community shelter and the new capacity can serve the community in a central location. The systems are already in place to harden the high school into becoming a blackstart capable, islandable renewable energy generating shelter to meet the community’s emergency needs so this is an excellent candidate for resiliency under the Initiative. Greenfield would also like to look at the possibility of adding resiliency to its wastewater treatment plant. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":367310.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2124,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2124/GreenfieldHS.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2124/thumb\_GreenfieldHS.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2124/partner\_GreenfieldHS.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.6065743,"longitude":-72.5952285,"master\_project\_id":null,"name":"Greenfield High School (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"Massachusetts Department of Energy Resources","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.cesa.org/projects/energy-storage-technology-advancement-partnership/energy-storage-news/newsitem/massachusetts-announces-second-round-of-resilient-power-project-grants","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":129,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"1 Lenox Ave","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T22:38:26Z","updated\_at\_by\_admin":"2016-04-06T22:38:26Z","updated\_by":null,"updated\_by\_email":null,"utility":"Western Massachusetts Electric","utility\_type":"Public Owned","vendor\_company":"","zip":"01301"}},{"project":{"announcement\_on":"2022-01-02","approval\_status":1,"city":"Holyoke","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"rickerc@holyoke.org","contact\_info\_visible":false,"contact\_name":"Claire Ricker","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1013794.0,"cost\_OPEX":null,"country":"United States","created\_at":"2016-03-31T18:35:19Z","created\_by\_id":360,"debt\_investor":"","decommissioning\_on":null,"desc":"Solar PV plus batteries will be installed at three different project sites to provide resilient power for 100% load for up to three days. The fire headquarters will receive a 53 kW photovoltaic system and a 300 kWh battery bank, which will run in combination with an existing backup generator. Mt. Tom Tower, the emergency communications tower for the city, will receive a small PV system, a small wind turbine, and a 200 kWh battery. And the Dean School, a community shelter, will receive a 600 kW PV array with a 483 kWh battery bank, which will run in combination with an existing back-up generator.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":1013794.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Massachusetts Department of Energy Resources","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2125,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2125/DeanSchool.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2125/thumb\_DeanSchool.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2125/partner\_DeanSchool.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.2042586,"longitude":-72.6162009,"master\_project\_id":null,"name":"Holyoke Resiliency Facilities (MASS DOER Community Resiliency)","om\_contractor":"","organization":null,"owner\_1":"Holyoke Gas & Electric","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.cesa.org/projects/energy-storage-technology-advancement-partnership/energy-storage-news/newsitem/massachusetts-announces-second-round-of-resilient-power-project-grants","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":983,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-06T22:50:56Z","updated\_at\_by\_admin":"2016-04-06T22:50:56Z","updated\_by":null,"updated\_by\_email":null,"utility":"Holyoke Gas & Electric","utility\_type":"State/Municipal Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Capo d'Orlando","commissioning\_on":"2022-11-19","companion":"100 kW Rooftop Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"giacomo.gorni@tozziholding.com","contact\_info\_visible":false,"contact\_name":"Giacomo Gorni","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2016-04-04T07:34:42Z","created\_by\_id":204,"debt\_investor":"","decommissioning\_on":null,"desc":"A Microgrid storage system, integrating PV plant on roof (100 KW) and electrolyzer unit for H2 production and storage, has been installed in Capo d'Orlando, Italy, inside an industrial district on a site owned by the City Hall for last mile goods delivery and public transportation with electric and fuel cell vehicles. This energy storage system guarantees self-sustaining recharging of vehicles and independency of the site from the grid instability.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2126,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2126/Tozzi\_Green\_iNEXT.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2126/thumb\_Tozzi\_Green\_iNEXT.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2126/partner\_Tozzi\_Green\_iNEXT.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.1253798,"longitude":14.7186516,"master\_project\_id":null,"name":"Tozzi Green - i-NEXT","om\_contractor":"","organization":"Tozzi Holding","owner\_1":"City Hall Capo d'Orlando","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.sciencedirect.com/science/article/pii/S0360319917327842","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"The proposed project, according to the European Union action plan on urban mobility, aims to support innovation in transport, by promoting a system based on sustainable mobility and RES (Renewable Energy Sources), and by acting simultaneously on improving logistics and distribution channels.","research\_institution":"CNR ITAE Messina","research\_institution\_link":"http://www.itae.cnr.it/page.php?sezione=risorse&id=7&pagina=-1&lingua=en","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Transportation Services","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":100,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Messina","status":"Operational","street\_address":"Contrada Malvicino","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-nickel-chloride Battery","technology\_type\_l1":"Sodium based Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-26T04:43:51Z","updated\_at\_by\_admin":"2016-04-06T20:25:11Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":"98071"}},{"project":{"announcement\_on":"2022-03-30","approval\_status":1,"city":"Georgetown","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"alex.rios@alevo.com; info@ormat.com","contact\_info\_visible":false,"contact\_name":"Alex Rios","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Ormat Technologies","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-04-05T21:22:06Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This project appears to be delayed.\r\n\r\nThe Rabbit Hill Energy Storage Project, located in Georgetown, Texas, is a joint project between Ormat Technologies and Alevo to build, own and operate the energy storage system. Ormat will own and fund the majority of the Rabbit Hill energy storage project and under the terms of the agreements, will provide engineering, construction services and balance of plant equipment. The project will consist of three Alevo GridBank inorganic lithium ion energy storage systems and six Parker-Hannifin 890- GTB Power Conversion Systems (PCS). Alevo will also provide ongoing management and operations and maintenance services for the life of the project.\r\n\r\nThe 10 MW project will consist of three GridBank enclosures and will provide fast responding regulation services (FRRS) as an open market participant in the Electric Reliability Council of Texas (ERCOT), an independent system operator that manages the flow of electric power to Texas customers. The project represents an evolution of the Texas market, which has more wind installed than any other state and has a rapidly expanding base of installed solar energy projects.","developer":"","electronics\_provider":"Parker Hannifin","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2127,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2127/Alevo-RabbitHill-web.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2127/thumb\_Alevo-RabbitHill-web.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2127/partner\_Alevo-RabbitHill-web.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":30.6332618,"longitude":-97.6779842,"master\_project\_id":null,"name":"Rabbit Hill Energy Storage Project","om\_contractor":"Alevo","organization":"","owner\_1":"Ormat Technologies","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.ormat.com/news/latest-items/ormat-and-alevo-jointly-build-own-and-operate-first-energy-storage-project-georget","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Texas","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-27T00:22:17Z","updated\_at\_by\_admin":"2016-10-12T17:18:44Z","updated\_by":null,"updated\_by\_email":null,"utility":"Georgetown Utility Systems","utility\_type":"Public Owned","vendor\_company":"Alevo","zip":""}},{"project":{"announcement\_on":"2022-03-18","approval\_status":1,"city":"Peterhead","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"stephen.bull@statoil.com","contact\_info\_visible":false,"contact\_name":"Stephen Bull","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2016-04-06T16:00:23Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"A new battery storage solution for offshore wind energy will be piloted in the world’s first floating wind farm, the Hywind pilot park off the coast of Peterhead in Aberdeenshire, Scotland. Batwind will be developed in co-operation with Scottish universities and suppliers, under a new Memorandum of Understanding (MoU) signed in Edinburgh on 18 March between Statoil, the Scottish Government, the Offshore Renewable Energy (ORE) Catapult and Scottish Enterprise.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2128,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2128/21mar-batwind-illustration.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2128/thumb\_21mar-batwind-illustration.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2128/partner\_21mar-batwind-illustration.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":57.508123,"longitude":-1.784066,"master\_project\_id":null,"name":"Batwind - Statoil","om\_contractor":"","organization":null,"owner\_1":"Statoil","owner\_2":"Scottish Government, Offshore Renewable Energy , Scottish Enterprise","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.statoil.com/en/NewsAndMedia/News/2016/Pages/21mar-batwind.aspx","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Aberdeenshire","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-16T23:48:24Z","updated\_at\_by\_admin":"2016-05-16T23:48:24Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-04-02","approval\_status":2,"city":"Antananarivo","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"kavila@fluidicenergy.com","contact\_info\_visible":false,"contact\_name":"Katie Avila","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Madagascar","created\_at":"2016-04-06T17:11:38Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Fluidic Energy, in partnership with Henri Frasie Fils & Cie, and the Government of Madagascar has entered into an agreement that will see the Fluidic-Henry Fraise Consortium provide renewable energy based turn-key mini-grid solutions to 100 remote villages and communities with more than 400,000 people, who currently do not have access to reliable electricity. The village mini-grid systems deployed will utilize more than 7.5 MWp of photovoltaic panels, 45 MWh of Fluidic Energy Advanced Energy Storage products, have 48 hours of autonomy, distribution grid and pre-pay billing systems. This is one of the largest off-grid rural electrification projects on the continent of Africa, and demonstrates the commitment of the Republic of Madagascar’s Government to increase the national electrification rate and bring reliable energy access to all populated areas of the country.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2129,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2129/energygrid.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2129/thumb\_energygrid.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2129/partner\_energygrid.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":-18.8791902,"longitude":47.5079055,"master\_project\_id":"","name":"Madagascar Renewable Mini-Grids - Fluidic Energy","om\_contractor":"","organization":null,"owner\_1":"Henry FRAISE & Fils","owner\_2":"Fluidic Energy","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://azbusinessdaily.com/stories/510707813-fluidic-energy-signs-agreement-for-mini-grid-electricity-project-to-help-100-african-villages","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":938,"size\_kwh":48.0,"size\_kwh\_hours":48,"size\_kwh\_minutes":0.0,"state":"Antananarivo Province","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Air Battery","technology\_type\_l1":"Metal Air Battery","technology\_type\_l2":"Zinc Air Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-24T18:22:23Z","updated\_at\_by\_admin":"2016-05-24T18:22:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Ojai","commissioning\_on":"2022-03-22","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"simpliphi@technicacommunications.com","contact\_info\_visible":true,"contact\_name":"Lisa Ann Pinkerton","contact\_phone":"408-806-9626","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":" California Solar Electric ","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-04-06T18:03:07Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"SimpliPhi Power and California Solar Electric have completed the second phase of an off-grid solar plus storage installation at the Taft Botanical Gardens in Ojai, Calif, which are part of an eco resort owned by the non-profit Conservation Endowment Fund.\r\n\r\nTaft Gardens was challenged to preserve the pristine natural environment of the gardens while at the same time generating and harvesting enough off-grid power to accommodate expanding operations at this remote location. California Solar Electric originally designed and installed an off-grid hybrid solar power generation and storage solution that would eliminate trenching power lines and dramatically reduce generator use and fuel consumption for the eco resort. \r\n\r\nPhase one of the off-grid solar plus storage system involved the installation of eight PHI2.6 kWh batteries (48 v) to provide over 20 kWh of stored power for the facilities' main lodge and three separate living quarters. A year later, it was evident that the solar PV generation exceeded both the resort's daily electricity loads and the battery storage capacity. Increasing the battery storage allowed them to capture all their PV generation and store more power for evening loads in order to maximize their capital investment - all off grid.","developer":" California Solar Electric ","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2130,"image\_1":{"url":"../../images/2130/20160322100000ENPRN346615-SimpliPhi-Power---SimpliPhi-Taft-Gardens-Composite-90-1458640800MR.jpg","thumb":{"url":"../../images/thumb\_20160322100000ENPRN346615-SimpliPhi-Power---SimpliPhi-Taft-Gardens-Composite-90-1458640800MR\_0aa7oht3u28xtr2x45ic7d.jpg"},"partner":{"url":"../../images/partner\_20160322100000ENPRN346615-SimpliPhi-Power---SimpliPhi-Taft-Gardens-Composite-90-1458640800MR\_rtnt66cfvwdsgjkxk78ej0.jpg"}},"integrator\_company":" California Solar Electric ","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.4480495,"longitude":-119.242889,"master\_project\_id":null,"name":"Taft Botanical Gardens - SimpliPhi Power","om\_contractor":" California Solar Electric ","organization":null,"owner\_1":"Conservation Endowment Fund","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.entelligent.com/news/2016/03/22/simpliphi-power-and-california-solar-electric-expand-energy-storage-capacity-at-taft-botanical-gardens-eco-resort/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium Iron Phosphate Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-13T18:55:13Z","updated\_at\_by\_admin":"2016-06-13T18:55:13Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"SimpliPhi Power","zip":""}},{"project":{"announcement\_on":"2022-10-16","approval\_status":1,"city":"Framingham","commissioning\_on":"2022-02-01","companion":"400 kW rooftop photovoltaic system","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"press@solarcity.com","contact\_info\_visible":false,"contact\_name":"Molly Canales","contact\_phone":"650 963 5674","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-04-07T00:13:27Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"SolarCity and Texas-based Direct Energy installed solar electric and energy storage systems at two BJ's Wholesale Club locations in Massachusetts.\r\n\r\nBJ's in Framingham hosts a 400 kW rooftop photovoltaic system, while the Dedham location has a 764 kW array. Both sites will have a 200 kW / 400kWh lithium-ion battery storage system.\r\n\r\nSolarCity will also install a 1.3 MW solar system on BJ's distribution facility in Uxbridge, Mass., this year. All three of these new solar projects for BJ's were assisted by a dedicated investment fund created by Direct Energy and SolarCity in 2013 to finance up to $124 million in solar projects.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2132,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"SolarCity","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.3067456,"longitude":-71.3990022,"master\_project\_id":null,"name":"BJ's Wholesale Club - SolarCity / Direct Energy - (Framingham, MA)","om\_contractor":"","organization":"SolarCity","owner\_1":"SolarCity","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.solarcity.com/newsroom/press/bj%E2%80%99s-wholesale-club-saves-energy-storage-direct-energy-and-solarcity","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Operational","street\_address":"26 Whittier St","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-05T05:03:53Z","updated\_at\_by\_admin":"2016-04-07T00:14:07Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"SolarCity, Direct Energy","zip":"01701"}},{"project":{"announcement\_on":"2022-09-01","approval\_status":1,"city":"Kailua Kona","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"Hilo","contact\_country":"United States","contact\_email":"riley.ceria@helcohi.com","contact\_info\_visible":false,"contact\_name":"Riley Ceria","contact\_phone":"(808) 969-0353","contact\_state":"Hawaii","contact\_street\_address":"54 Halekauila St., ","contact\_zip":"96720","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-04-07T21:44:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The battery energy storage system located at Koyo USA Corp, a tenant of the Natural Energy Laboratory of Hawaii Authority (NELHA), is a Saft turnkey energy storage system (ESS) comprised of two Intensium Max 20E containers integrated with a 100 kW Power Conversion System to the Hawaii Electric Light Company (HELCO) to increase the grids' ability to integrate more renewable energy. \r\n\r\nThe project aims to achieve the integration of ever‐increasing amounts of renewable energy. The Hawaii Big Island is already a leader, with more than one‐third of its energy coming from renewable sources.","developer":"","electronics\_provider":"Saft","energy\_management\_software\_provider":"","funding\_amount\_1":450000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National American Recovery and Reinvestment Act of 2009 - RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"US Department of Energy","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2134,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2134/NELHA.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2134/thumb\_NELHA.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2134/partner\_NELHA.jpg"}},"integrator\_company":"Saft","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":19.7173967,"longitude":-156.0500252,"master\_project\_id":null,"name":"HELCO BESS - Koyo (NELHA)","om\_contractor":"","organization":"Hawaii Electric Light Company","owner\_1":"Hawaii Electric Light Company","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.saftbatteries.com","primary\_reference1":"","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"NELHA administers the world’s premier energy and ocean technology park.","research\_institution":"Natural Energy Laboratory of Hawaii Authority (NELHA)","research\_institution\_link":"http://nelha.hawaii.gov/","service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":2.5,"size\_kwh\_hours":2,"size\_kwh\_minutes":30.0,"state":"Hawaii","status":"Operational","street\_address":"73-987 Makako Bay Drive ","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-26T04:57:48Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Hawaii Electric Light Company","utility\_type":"Investor Owned","vendor\_company":"Saft","zip":"96740"}},{"project":{"announcement\_on":"2022-03-31","approval\_status":1,"city":"San Diego","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"RNicholson@semprautilities.com; apugh@hecateenergy.com","contact\_info\_visible":false,"contact\_name":"Randy Nicholson (SDG&E); Alex Pugh (Hecate)","contact\_phone":"(858) 805-1128; (310) 658-0936","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-04-08T18:00:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"San Diego Gas & Electric (SDG&E) announced that it has signed a contract with Hecate Energy Bancroft, LLC for a 20 megawatt (MW) energy storage facility that will be capable of storing enough electricity to power 28,000 homes for up to four hours. The lithium ion battery project is the largest of its kind in the San Diego region. Building on SDG&E’s commitment to create efficiencies and provide clean energy, the storage facility will support the company’s leadership position in delivering more renewable energy and bringing other sustainable practices directly into the community. Along with SDG&E solutions for increasing the number of zero-emission vehicles, these efforts help to lower the region’s carbon footprint overall.\r\n\r\nThe 20 MW battery project will be owned by Hecate Energy Bancroft LLC and supply energy under a 20-year power purchase agreement to SDG&E. The facility is expected to be completed by 2019.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2136,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.715738,"longitude":-117.1610838,"master\_project\_id":null,"name":"SDG&E / Hecate Energy Bancroft - (San Diego, CA)","om\_contractor":"","organization":null,"owner\_1":"Hecate Energy Bancroft LLC","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.sdge.com/newsroom/press-releases/2016-03-31/sdge-adding-new-technologies-harness-clean-energy-efficiencies","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Transmission","size\_kw":20000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-08T18:01:17Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Mount Toolebewong","commissioning\_on":"2022-02-01","companion":"Solar PV","construction\_on":null,"contact\_city":"Sydney","contact\_country":"Australia","contact\_email":"info@ecoult.com","contact\_info\_visible":true,"contact\_name":"Ecoult","contact\_phone":"61 (02) 9241 3001","contact\_state":"NSW","contact\_street\_address":"Suite 402, Grafton Bond Building, 201 Kent Street","contact\_zip":"2000","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":20000.0,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-04-11T05:54:24Z","created\_by\_id":369,"debt\_investor":"","decommissioning\_on":null,"desc":"Ecoult has installed an UltraFlex 48 V system at a 100% renewable powered community of over 70 people and 30 houses. The system is used as an anchor for the remainder of their large micro-grid including a 3 phase power system and extensive PV generation. The system is also part of a training centre for renewable and storage installers, for which UltraFlex is an important training tool.\r\n","developer":"","electronics\_provider":"Selectronic","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2137,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"SolarQuip","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-37.6981598,"longitude":145.5639031,"master\_project\_id":null,"name":"Moora Moora: Residential Storage: 100% Off-grid Community","om\_contractor":"","organization":null,"owner\_1":"SolarQuip","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.ecoult.com/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"On-Site Power","service\_use\_case\_6":"Onsite Renewable Generation Shifting","service\_use\_case\_7":"Renewables Capacity Firming","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":20,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Victoria","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Hybrid Lead-acid Battery/Electro-chemical Capacitor","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-03T20:08:02Z","updated\_at\_by\_admin":"2016-05-03T20:08:02Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Ecoult","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Kangaroo Valley","commissioning\_on":"2022-06-01","companion":"Solar PV, Micro Hydro","construction\_on":null,"contact\_city":"Sydney","contact\_country":"Australia","contact\_email":"robert.stevenson@ecoult.com; info@ecoult.com","contact\_info\_visible":false,"contact\_name":"Robert Stevenson","contact\_phone":"61 (02) 9241 3001","contact\_state":"New South Wales","contact\_street\_address":"Suite 402, Grafton Bond Building, 201 Kent Street","contact\_zip":"2000","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":20000.0,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-04-11T10:26:01Z","created\_by\_id":369,"debt\_investor":"","decommissioning\_on":null,"desc":"Ecoult provided an UltraFlex 48 V energy storage system which is now integral to the site’s power system. The site consists of administration, accommodation, spa and commercial kitchen facilities for over 20 people. Previously a lead-acid system had provided energy storage but it required more frequent diesel use than was desirable and was approaching end of life. The UltraFlex solution can provide adequate storage even though it is less than half the size of the site’s previous battery system, due to the high charge rates possible with UltraBattery. Over the first year after the UltraFlex was installed, diesel use was limited to a single half hour period per day (after sunset) in winter and to only a few hours in total for the entire non-winter period.\r\n","developer":"","electronics\_provider":"Selectronic","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2138,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2138/cedarvale\_retreat\_location.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2138/thumb\_cedarvale\_retreat\_location.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2138/partner\_cedarvale\_retreat\_location.jpg"}},"integrator\_company":"Ecoult","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-34.7341224,"longitude":150.5258765,"master\_project\_id":null,"name":"Cedarvale: Small Commercial Storage: Health Retreat, Kangaroo Valley","om\_contractor":"","organization":null,"owner\_1":"Privately Owned","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.ecoult.com/technology/ultrabattery/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"On-Site Power","service\_use\_case\_6":"Onsite Renewable Generation Shifting","service\_use\_case\_7":"Renewables Capacity Firming","service\_use\_case\_8":"Voltage Support","service\_use\_case\_9":"","siting":"","size\_kw":20,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"New South Wales","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Hybrid Lead-acid Battery/Electro-chemical Capacitor","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-12T20:42:47Z","updated\_at\_by\_admin":"2016-05-12T20:42:47Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Ecoult","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Dural","commissioning\_on":"2022-02-05","companion":"","construction\_on":null,"contact\_city":"Sydney","contact\_country":"Australia","contact\_email":"info@ecoult.com","contact\_info\_visible":true,"contact\_name":"Ecoult","contact\_phone":"61 (02) 9241 3001","contact\_state":"New South Wales","contact\_street\_address":"Suite 402, Grafton Bond Building, 201 Kent Street","contact\_zip":"2000","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":20000.0,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-04-11T10:30:30Z","created\_by\_id":369,"debt\_investor":"","decommissioning\_on":null,"desc":"An UltraFlex 48 V system was installed to manage the peak loads and to store PV for brief periods – essentially micro-balancing the load by shifting large, short power swings through the battery, trimming peaks from the grid profile and minimizing grid usage. The customer is now able to import less energy from the grid, and was able to ride through the blackout and control shutdowns with the battery system.\r\n","developer":"","electronics\_provider":"Selectronic","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2139,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Ecoult","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-33.6808061,"longitude":151.0284514,"master\_project\_id":null,"name":"LJW Solar: Small Commercial Storage: Peak Shaving And Solar Self-Consumption","om\_contractor":"","organization":null,"owner\_1":"LJW Solar","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.ecoult.com/technology/ultrabattery/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":20,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"New South Wales","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Hybrid Lead-acid Battery/Electro-chemical Capacitor","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-03T20:04:17Z","updated\_at\_by\_admin":"2016-05-03T20:04:17Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Ecoult","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Wollongong","commissioning\_on":"2022-06-03","companion":"Solar PV","construction\_on":null,"contact\_city":"Sydney","contact\_country":"Australia","contact\_email":"info@ecoult.com","contact\_info\_visible":true,"contact\_name":"Ecoult","contact\_phone":"61 (02) 9241 3001","contact\_state":"New South Wales","contact\_street\_address":"Suite 402, Grafton Bond Building, 201 Kent Street","contact\_zip":"2000","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":20000.0,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-04-11T10:37:31Z","created\_by\_id":369,"debt\_investor":"","decommissioning\_on":null,"desc":"Ecoult provided an UltraFlex 48 V energy storage solution and developed a control method to significantly reduce diesel operation, resulting in over 50% diesel savings – with follow-on benefits of reduced personnel visits and less frequent servicing. The diesel generator now runs at full rated output for short bursts, with excess power being used to charge the UltraFlex 48 V system.\r\n","developer":"","electronics\_provider":"Selectronic","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2140,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Ecoult","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-34.4250728,"longitude":150.8931494,"master\_project\_id":null,"name":"Small Commercial Storage: Remote Telecomunications Base Station","om\_contractor":"","organization":null,"owner\_1":"N/A","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.ecoult.com/technology/ultrabattery/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":20,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"New South Wales","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Hybrid Lead-acid Battery/Electro-chemical Capacitor","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-03T20:03:03Z","updated\_at\_by\_admin":"2016-05-03T20:03:03Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Ecoult","zip":""}},{"project":{"announcement\_on":"2022-04-07","approval\_status":1,"city":"Central Aguirre","commissioning\_on":"2022-04-08","companion":"Sited near 16 MW Horizon Energy solar PV plant -- energy storage system will be powered by its own 250 kW solar array","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"epond@aquion-energy.com; gene@trevicomm.com","contact\_info\_visible":false,"contact\_name":"Elizabeth Pond; Gene Hunt","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Puerto Rico","created\_at":"2016-04-11T18:17:09Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Independent Power Producer (IPP) Sonnedix connected a 1.25 MWh liquid battery to a 16 MW solar farm in Puerto Rico in what is one of the first near grid-independent storage projects for the region.\r\n\r\nThe Aqueous Hybrid Ion battery supplied by Aquion Energy is powered by a separate 250 kWp solar PV array. It will provide 100% of the overnight operational energy requirements for the 16 MW Horizon Energy solar plant in Salinas.\r\n\r\nThis energy storage installation will be controlled using software developed by Geli (Growing Energy Labs Inc.). The power controls will come from FlexGen Power Systems.","developer":"Sonnedix","electronics\_provider":"FlexGen Power Systems Inc.","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2141,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2141/Aquion\_puerto\_rico.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2141/thumb\_Aquion\_puerto\_rico.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2141/partner\_Aquion\_puerto\_rico.jpg"}},"integrator\_company":"GELI","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":17.9535782,"longitude":-66.222945,"master\_project\_id":null,"name":"Salinas Energy Solar Farm Storage System - Sonnedix","om\_contractor":"","organization":"Aquion Energy; Trevi Communications","owner\_1":"Sonnedix","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://blog.aquionenergy.com/load-shifting-hybrid-batteries","primary\_reference1":"https://www.utilitydive.com/news/aquion-battery-to-meet-overnight-needs-of-puerto-rican-solar-farm-1/417133/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":5.0,"size\_kwh\_hours":5,"size\_kwh\_minutes":0.0,"state":"Salinas","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-ion Battery","technology\_type\_l1":"Sodium based Battery","technology\_type\_l2":"Sodium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-02T05:46:58Z","updated\_at\_by\_admin":"2016-05-19T23:34:18Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Puerto Rico Electric Power Authority","utility\_type":"Federally Owned","vendor\_company":"Aquion Energy","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Buzen","commissioning\_on":"2022-03-03","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"prd.gnews@nk.MitsubishiElectric.co.jp; tdm.tds@rf.MitsubishiElectric.co.jp; ","contact\_info\_visible":false,"contact\_name":"Arisa Mori","contact\_phone":"+81-3-3218-2810","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2016-04-15T23:43:53Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Mitsubishi Electric Corp. has delivered what it claims is the world’s largest energy storage system to Japanese power vendor Kyushu Electric Power Co. The system—with 50 MW output and 300 MWh rated capacity—is part of a pilot project to balance supply and demand via high-capacity energy storage systems, and was installed at the Buzen Substation in Buzen, Fukuoka Prefecture in Japan.\r\n\r\nThe system smooths variations in frequency and power flow caused by renewable generation via battery control. In addition, it enables efficient operation via power supply control through the coordinated use of multiple-generation sources and batteries, as well as technology for optimizing operation, stoppage timing and output of the various sources.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2142,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2142/Mitsubishi\_Energy\_Storage\_50MW.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2142/thumb\_Mitsubishi\_Energy\_Storage\_50MW.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2142/partner\_Mitsubishi\_Energy\_Storage\_50MW.jpg"}},"integrator\_company":"Mitsubishi Electric Corporation","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.6115108,"longitude":131.130051,"master\_project\_id":null,"name":"Kyushu Electric - Buzen Substation - Mitsubishi Electric / NGK Insulators","om\_contractor":"","organization":"","owner\_1":"Kyushu Electric Power Co.","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://electronics360.globalspec.com/article/6402/mitsubishi-installs-50mw-energy-storage-system-to-japanese-power-company","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":50000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Fukuoka Prefecture","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium based Battery","technology\_type\_l2":"Sodium-sulfur Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-25T06:48:13Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Kyushu Electric Power Co.","utility\_type":"Investor Owned","vendor\_company":"NGK Insulators","zip":""}},{"project":{"announcement\_on":"2022-01-19","approval\_status":1,"city":"Idaho Falls","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"Chicago","contact\_country":"United States","contact\_email":"mike.grunow@viznenergy.com","contact\_info\_visible":false,"contact\_name":"Mike Grunow","contact\_phone":"","contact\_state":"Illinois","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-04-22T16:46:37Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"ViZn Energy Systems Inc. (ViZn) has received an order for a 128 kW/320 kWh redox flow battery system based on its zinc-iron chemistry from Idaho National Laboratory (INL), part of the Department of Energy’s (DOE) complex of national laboratories. ViZn’s flow battery system will be installed as part of a microgrid research, development and demonstration testbed and is expected to be commissioned in the second quarter of 2016.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2143,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2143/idaho\_vizn.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2143/thumb\_idaho\_vizn.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2143/partner\_idaho\_vizn.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":43.519585,"longitude":-112.046184,"master\_project\_id":null,"name":"Idaho National Laboratory - ViZn","om\_contractor":"","organization":null,"owner\_1":"Idaho National Laboratory","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.viznenergy.com/vizn-energy-systems-wins-contract-for-flow-battery-system-from-idaho-national-laboratory/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":128,"size\_kwh":2.5,"size\_kwh\_hours":2,"size\_kwh\_minutes":30.0,"state":"Idaho","status":"Contracted","street\_address":"2525 Fremont Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Zinc Iron Flow Battery","technology\_type\_l1":"Flow Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-22T17:39:38Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"83402"}},{"project":{"announcement\_on":"2022-04-22","approval\_status":1,"city":"Ciminna","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@terna-energy.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Italy","created\_at":"2016-04-26T23:03:35Z","created\_by\_id":360,"debt\_investor":"","decommissioning\_on":null,"desc":"UniEnergy Technologies (UET), announced a 450 kW / 1440 kWh utility-scale energy storage system for a Terna utility substation in Ciminna, Italy on the island of Sicily. The owner of the Italian High Voltage National Transmission Grid, Terna is the largest independent transmission system operator in Europe and the sixth in the world.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2144,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2144/uet\_energy\_storage.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2144/thumb\_uet\_energy\_storage.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2144/partner\_uet\_energy\_storage.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":37.8964116,"longitude":13.5602194,"master\_project\_id":null,"name":"Terna Ciminna Substation - UET","om\_contractor":"","organization":null,"owner\_1":"Terna Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.prnewswire.com/news-releases/unienergy-technologies-announces-next-utility-deployment-of-unisystemtm-with-terna-in-sicily-italy-300255968.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":450,"size\_kwh":3.2,"size\_kwh\_hours":3,"size\_kwh\_minutes":12.0,"state":"Sicily","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flow Battery","technology\_type\_l1":"Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-27T23:55:03Z","updated\_at\_by\_admin":"2016-04-27T23:18:44Z","updated\_by":null,"updated\_by\_email":null,"utility":"Terna","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-04-21","approval\_status":1,"city":"Wilmington","commissioning\_on":"2021-12-31","companion":"","construction\_on":"2022-06-01","contact\_city":"","contact\_country":"","contact\_email":"raheleh.folkerts@res-group.com","contact\_info\_visible":false,"contact\_name":"Raheleh Folkerts","contact\_phone":"+1 303 439 4200","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-04-26T23:36:05Z","created\_by\_id":360,"debt\_investor":"","decommissioning\_on":null,"desc":"Exelon Generation and Renewable Energy Systems (RES) announced the development of a 10 megawatt (MW) battery storage facility in Clinton County, Ohio. Exelon Generation is the storage facility owner and operator, and RES is the project developer and constructor.\r\n\r\nRES will begin construction during the second quarter of 2016, with the battery storage units expected to be fully operational by the end of the year.\r\n\r\nThree semi-trailer sized units will be housed next to a substation to allow for easy interconnection to electrical lines within the PJM grid. The entire storage unit footprint is less than one-third of an acre. Construction is expected to be completed by the fall of 2016. The monitoring, dispatch and control of the system will be handled by the RESolve energy platform, a proprietary technology developed by RES. RESolve will manage the system to maximize revenue and minimize battery degradation.","developer":"Renewable Energy Systems","electronics\_provider":"Parker Hannifin","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2145,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2145/2145\_exelon\_res.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2145/thumb\_2145\_exelon\_res.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2145/partner\_2145\_exelon\_res.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":39.4453393,"longitude":-83.8285375,"master\_project\_id":null,"name":"Clinton County BESS - Exelon / RES","om\_contractor":"Exelon Generation","organization":"","owner\_1":"Exelon Generation","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.prnewswire.com/news-releases/exelon-generation-and-res-announce-10-mw-battery-storage-project-300254050.html","primary\_reference1":"http://www.res-group.com/en/portfolio/?ProjectID=3283","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10000,"size\_kwh":25.0,"size\_kwh\_hours":25,"size\_kwh\_minutes":0.0,"state":"Ohio","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-27T00:12:36Z","updated\_at\_by\_admin":"2016-05-19T23:52:46Z","updated\_by":null,"updated\_by\_email":null,"utility":"Exelon","utility\_type":"","vendor\_company":"Samsung","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Fukuoka","commissioning\_on":"2022-04-19","companion":"Four 500 kW PV installations","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"contact@neces.com","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2016-04-27T00:06:52Z","created\_by\_id":360,"debt\_investor":"","decommissioning\_on":null,"desc":"NEC Corporation and NEC Energy Solutions announced that they have supplied and completed the installation of a GSS® large-scale energy storage system, with a capacity of 1.2 MWh and output of 500 kW, to operate in conjunction with a large PV solar power plant established by COLON Company Limited, a supplier of electricity generated from renewable energy.\r\n\r\nThis large-scale energy storage system plays an important role in adjusting and stabilizing the supply and demand of energy for the power grid. Typically, power generated by PV solar plants varies according to the amount of access they have to direct sunlight. By charging itself with the surplus electric energy that cannot be accepted by the power grid from the solar plant, the storage system reduces these fluctuations to deliver consistent energy levels.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2146,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2146/Colon1\_low\_res\_750\_487\_s.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2146/thumb\_Colon1\_low\_res\_750\_487\_s.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2146/partner\_Colon1\_low\_res\_750\_487\_s.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":33.5903547,"longitude":130.4017155,"master\_project\_id":null,"name":"NEC Kyuhsu BESS","om\_contractor":"","organization":"NEC Energy Solutions","owner\_1":"COLON","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.nec.com/en/press/201604/global\_20160419\_02.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":2.4,"size\_kwh\_hours":2,"size\_kwh\_minutes":24.0,"state":"Kyushu","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-26T20:23:25Z","updated\_at\_by\_admin":"2016-05-19T22:06:37Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Kyuhsu Electric","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-03-31","approval\_status":1,"city":"Neuhardenberg","commissioning\_on":"2022-04-21","companion":"145 MW Solar Plant","construction\_on":"2022-09-09","contact\_city":"","contact\_country":"Germany","contact\_email":"JBartell@strategen.com","contact\_info\_visible":false,"contact\_name":"Jake Bartell","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2016-04-27T07:46:28Z","created\_by\_id":388,"debt\_investor":"","decommissioning\_on":null,"desc":"Work is performance times. In the frequency-controlled power output of the PRL, it is important to follow the fluctuating frequency to the second. This happens in the energy storage Neuhardenberg in parallel and independently in 20 converters, which are each equipped with their own frequency control. 4 of these inverters are combined on one transformer. Combined with an active battery management system (BMS), which ensures the necessary energy balance at the cell level, this results in an extremely robust and fail-safe complete system of maximum efficiency.\r\n","developer":"","electronics\_provider":"Siemens","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2147,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2147/DSC\_0044.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2147/thumb\_DSC\_0044.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2147/partner\_DSC\_0044.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":52.6016493,"longitude":14.2408404,"master\_project\_id":null,"name":"BESS Neuhardenberg","om\_contractor":"","organization":"Strategen Consulting","owner\_1":"Upside Services GmbH","owner\_2":"","owner\_type":"3","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.upsidegrp.com","primary\_reference1":"https://upsidegrp.com/de/top-referenzen","projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"Fraunhofer IFF Magdeburg","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":5000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Brandenburg","status":"Operational","street\_address":"Oderbruchstraße 24","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-22T20:46:11Z","updated\_at\_by\_admin":"2016-04-27T18:03:55Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"","zip":"15320"}},{"project":{"announcement\_on":"2022-04-18","approval\_status":0,"city":"Jhajjar","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ecosolutions@us.panasonic.com","contact\_info\_visible":false,"contact\_name":"","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"India","created\_at":"2016-04-27T22:32:26Z","created\_by\_id":360,"debt\_investor":"","decommissioning\_on":null,"desc":"An agreement to build a 10 MW / 10 MWh energy storage facility in Haryana, India, has been reached by Panasonic India Pvt. and AES India Private Limited. The electricity from the battery system will provide backup and enhance daily reliability for a Panasonic India manufacturing site. The AES Advancion platform will be used, in conjunction with Panasonic’s lithium-ion batteries. It will be India’s first large-scale battery-based energy storage project.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Debt","funding\_source\_2":"Private/Third Party Debt","funding\_source\_3":"","funding\_source\_details\_1":"Panasonic India Pvt. Ltd.","funding\_source\_details\_2":"AES India Pvt. Ltd.","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2148,"image\_1":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2148/panasonicadvancion-570x855.jpg","thumb":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2148/thumb\_panasonicadvancion-570x855.jpg"},"partner":{"url":"https://s3.amazonaws.com/ese-prod/uploads/project/image\_1/2148/partner\_panasonicadvancion-570x855.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":28.6079115,"longitude":76.6571775,"master\_project\_id":null,"name":"Jhajjar, Haryana BESS - AES","om\_contractor":"","organization":null,"owner\_1":"Panasonic India Pvt. Ltd.","owner\_2":"AES India Pvt. Ltd.","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://cleantechnica.com/2016/04/20/10-mw10mwh-energy-storage-project-haryana-india/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"On-Site Power","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Haryana","status":"Announced","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-04-28T00:07:24Z","updated\_at\_by\_admin":"2016-04-28T00:07:24Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Sonoma","commissioning\_on":"2022-04-26","companion":"32 kW Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"epond@aquion-energy.com; gene@trevicomm.com","contact\_info\_visible":false,"contact\_name":"Elizabeth Pond; Gene Hunt","contact\_phone":"978-750-0333","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-05-05T21:47:25Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"The solar PV + storage installation is part of the farm’s innovative microgrid and is designed to provide energy for a number of buildings on the site, including the primary residence, offices and workshops.\r\n\r\nThe system consists of fourteen 25 kWh Aquion M-Line Battery Modules providing approximately 350 kWh of energy storage capacity, connected to a 32 kW solar array using Ideal Power’s 30 kW multi-port power conversion system. The Ideal Power multi-port system architecture enables the direct DC-level connection of solar PV and energy storage in one compact, highly efficient, transformerless package, eliminating the complexities and redundancies of older, AC-coupled systems. \r\n\r\nAquion’s safe and environmentally friendly battery technology is a unique saltwater chemistry made from abundant, nontoxic materials. The batteries are designed for daily deep cycling in long duration (4+ hour charge/discharge) applications, making them ideal for solar installations.\r\n","developer":"","electronics\_provider":"Ideal Power","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2149,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2149/Aquion\_batteries\_offgrid.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2149/thumb\_Aquion\_batteries\_offgrid.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2149/partner\_Aquion\_batteries\_offgrid.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":38.2589716,"longitude":-122.4395579,"master\_project\_id":"","name":"Stone Edge Farm Winery - Aquion Energy","om\_contractor":"","organization":null,"owner\_1":"Stone Edge Farm","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://blog.aquionenergy.com/press-release-aquion-and-ideal-power-bring-energy-independence-and-resiliency-to-sonoma-winery","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"On-Site Power","service\_use\_case\_6":"Onsite Renewable Generation Shifting","service\_use\_case\_7":"Renewables Energy Time Shift","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":30,"size\_kwh":11.6666666666667,"size\_kwh\_hours":11,"size\_kwh\_minutes":40.0,"state":"California","status":"Operational","street\_address":"21692 8th St E #110","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-ion Battery","technology\_type\_l1":"Sodium based Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-24T23:47:23Z","updated\_at\_by\_admin":"2016-05-24T23:47:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Aquion Energy ","zip":"95476"}},{"project":{"announcement\_on":"2022-05-03","approval\_status":1,"city":"Tucson","commissioning\_on":"2022-12-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"jbarrios@tep.com","contact\_info\_visible":true,"contact\_name":"Joseph Barrios","contact\_phone":"520-884-3725","contact\_state":"Arizona","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-05-06T19:11:53Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"This project, approved by the Arizona Corporation Commission (ACC), will be used to improve service reliability and study how energy storage systems can support the expansion of solar power resources and other renewable energy technologies. A 10 MW lithium nickel-manganese-cobalt (NMC) facility at a TEP substation near Interstate 10 and West Grant Road. The system will be built by NextEra Energy Resources and is expected to be in operation later this year.\r\n\r\nThe systems will be used primarily to help maintain the required balance between energy demand and supply. Energy storage systems can boost power output levels more quickly than conventional generating resources. If the voltage frequency of the regional electric grid suddenly dropped, power producers like TEP would be required to quickly ramp up output to boost frequency and maintain reliability. \r\n\r\nThe systems also can help prevent power outages during periods of high energy demand by supporting stable voltage on TEP’s energy delivery system. In the event of an outage, the systems could provide about 5 MW of power for up to an hour. Use of these energy storage systems will help TEP avoid using more expensive generating resources for system disturbances. They also will allow the company to defer costly investments in other system infrastructure. \r\n","developer":"NextEra Energy Resources","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2150,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2150/tep-logo-final.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2150/thumb\_tep-logo-final.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2150/partner\_tep-logo-final.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":32.2217429,"longitude":-110.926479,"master\_project\_id":null,"name":"Tucson Electric Power (TEP) - NextEra","om\_contractor":"","organization":null,"owner\_1":"Tucson Electric Power","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.tep.com/news/newsroom/release/?idRec=444","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Bill Management with Renewables","service\_use\_case\_4":"Ramping ","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"Resiliency","service\_use\_case\_7":"Transmission upgrades due to solar","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Arizona","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Nickel Manganese Cobalt Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-12T18:57:40Z","updated\_at\_by\_admin":"2016-05-12T18:57:40Z","updated\_by":null,"updated\_by\_email":null,"utility":"Tucson Electric Power","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-05-03","approval\_status":1,"city":"Tucson","commissioning\_on":"2022-03-01","companion":"2 MW solar array","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"jbarrios@tep.com","contact\_info\_visible":true,"contact\_name":"Joseph Barrios","contact\_phone":"520-884-3725","contact\_state":"Arizona","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-05-06T19:23:59Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"The project, approved by the Arizona Corporation Commission (ACC), will be used to improve service reliability and study how energy storage systems can support the expansion of solar power resources and other renewable energy technologies. A 10 MW lithium titanate oxide (LTO) storage facility and accompanying 2 MW solar array located at the University of Arizona Science and Technology Park southeast of Tucson. The facility will be built by Chicago-based E.ON Climate & Renewables and is expected to be completed in the first quarter of 2017.\r\n\r\nThe systems will be used primarily to help maintain the required balance between energy demand and supply. Energy storage systems can boost power output levels more quickly than conventional generating resources. If the voltage frequency of the regional electric grid suddenly dropped, power producers like TEP would be required to quickly ramp up output to boost frequency and maintain reliability. \r\n\r\nThe systems also can help prevent power outages during periods of high energy demand by supporting stable voltage on TEP’s energy delivery system. In the event of an outage, the systems could provide about 5 MW of power for up to an hour. Use of these energy storage systems will help TEP avoid using more expensive generating resources for system disturbances. They also will allow the company to defer costly investments in other system infrastructure. \r\n","developer":"E.ON Climate and Renewables","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2151,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2151/tep-logo-final.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2151/thumb\_tep-logo-final.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2151/partner\_tep-logo-final.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":32.2217429,"longitude":-110.926479,"master\_project\_id":null,"name":"University of Arizona Science and Technology Park / TEP - E.ON","om\_contractor":"","organization":null,"owner\_1":"Tucson Electric Power","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.tep.com/news/newsroom/release/?idRec=444","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Bill Management with Renewables","service\_use\_case\_4":"Ramping ","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"Resiliency","service\_use\_case\_7":"Transmission upgrades due to solar","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Arizona ","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium Ion Titanate Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-16T16:26:32Z","updated\_at\_by\_admin":"2016-05-16T16:26:32Z","updated\_by":null,"updated\_by\_email":null,"utility":"Tucson Electric Power","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Newcastle","commissioning\_on":"2022-04-14","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"aclarke@ncc.nsw.gov.au","contact\_info\_visible":false,"contact\_name":"Adam Clarke (Newcastle City Council)","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-05-10T01:59:04Z","created\_by\_id":391,"debt\_investor":"","decommissioning\_on":null,"desc":"Elmofo / Kokam Lithium-Ion Battery System","developer":"","electronics\_provider":"SMA","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2152,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2152/elmofo2.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2152/thumb\_elmofo2.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2152/partner\_elmofo2.JPG"}},"integrator\_company":"Elmofo","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-32.9342146,"longitude":151.757784,"master\_project\_id":null,"name":"Newcastle Sportsground No 2 - Elmofo / Kokam","om\_contractor":"","organization":null,"owner\_1":"NCC","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.newcastle.nsw.gov.au/","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"NSW","status":"Operational","street\_address":"Smith Street","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-24T23:42:33Z","updated\_at\_by\_admin":"2016-05-24T23:42:33Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Kokam","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Multiple","commissioning\_on":"2022-01-31","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"RMadlener@eonerc.rwth-aachen.de; invest@gtai.com","contact\_info\_visible":false,"contact\_name":"Reinhard Madlener (Professor at RWTH University)","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2016-05-11T20:42:05Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Germany had around 68 MW of installed solar photovoltaic (PV) battery storage capacity at end of January 2016, a government-commissioned study showed.\r\n\r\nA total of 34,000 PV battery storage systems, with an average usable capacity of 2 kW, were installed by 31 January, according to the study by Aachen-based RWTH university. Installations increased sharply last year, when almost every second new PV project was fitted with a battery system. Germany added around 1.5 GW of solar PV generation capacity last year.\r\n\r\nBattery systems prevented around 78.5 GWh of solar generation from being fed to the grid last year, the study showed.\r\n\r\nAround 27% of installed PV storage systems are lead-acid batteries, while 73% are lithium batteries. The latter account for 67% of usable battery storage capacity, with lead-acid batteries making up the remainder. More than 90% of PV storage systems installed in the fourth quarter were lithium batteries, as falling prices, higher efficiencies and longer lifespans of lithium systems have supported their utilization, the study said.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"State-owned bank KfW subsidised around 19,000 PV Battery storage units under KfW program 275","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2153,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2153/Germany\_Residential\_Solar.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2153/thumb\_Germany\_Residential\_Solar.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2153/partner\_Germany\_Residential\_Solar.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":51.2532215,"longitude":6.7767352,"master\_project\_id":null,"name":"Germany Residential Energy Storage Systems - 34,000 PV Battery Storage Systems @ 2 kW","om\_contractor":"","organization":"","owner\_1":"Private Owners","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"http://www.speichermonitoring.de/fileadmin/user\_upload/Speichermonitoring\_Jahresbericht\_2016\_Kairies\_web.pdf","primary\_reference":"http://www.speichermonitoring.de/news.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"RWTH Aachen University is a research university located in Aachen, North Rhine-Westphalia, Germany. With more than 42,000 students enrolled in 144 study programs, it is the largest technical university in Germany.","research\_institution":"RWTH Aachen University","research\_institution\_link":"http://www.rwth-aachen.de/cms/~a/root/lidx/1/","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":68000,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Multiple","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-25T06:44:36Z","updated\_at\_by\_admin":"2016-07-01T18:04:16Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Mt. 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Maxwell Technologies' Ultracapacitors provide a fast response and high power density, while Aquion Energy's Aqueous Hybrid Ion (AHI) batteries provide low-cost performance and very high energy density. The integration of these ESSs along with innovative energy management algorithms into the hardware and software HESS platform allows for simultaneous solar smoothing, price arbitrage and load following, as well as peak shaving.","developer":"","electronics\_provider":"Win Inertia","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"Private/Third Party","funding\_source\_3":"","funding\_source\_details\_1":"Win Inertia","funding\_source\_details\_2":"Maxwell Technologies","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2154,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2154/Duke\_HESS.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2154/thumb\_Duke\_HESS.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2154/partner\_Duke\_HESS.jpg"}},"integrator\_company":"Win Inertia","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":35.2929696,"longitude":-81.0254807,"master\_project\_id":null,"name":"Win Inertia/Maxwell Rankin Substation","om\_contractor":"","organization":"Win Intertia","owner\_1":"Win Inertia/Maxwell","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://news.duke-energy.com/releases/duke-energy-to-put-new-battery-and-ultracapacitor-system-to-the-test-in-n-c","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Load Following (Tertiary Balancing)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":250,"size\_kwh":0.0333333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":2.0,"state":"North Carolina","status":"Operational","street\_address":"458 Glendale Ave","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical Capacitor","technology\_type\_l1":"","technology\_type\_l2":"Electro-chemical Capacitor","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-02T05:57:01Z","updated\_at\_by\_admin":"2016-05-17T18:17:59Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Duke Energy","utility\_type":"Investor Owned","vendor\_company":"Maxwell Technologies","zip":"28120"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Mt. Holly","commissioning\_on":"2022-02-15","companion":"Utility Owned Solar on Circuit","construction\_on":null,"contact\_city":"La Rinconada","contact\_country":"Spain","contact\_email":"marketing@wininertia.es","contact\_info\_visible":false,"contact\_name":"Rosemary Overbey","contact\_phone":"(34)954173085","contact\_state":"Sevilla","contact\_street\_address":"P.E. Aerópolis - Calle Wilbur y Orville Wright, 29","contact\_zip":"41309","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-05-12T17:29:41Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This project demonstrates a first-of-its-kind Hybrid Energy Storage System (HESS) that facilitates RES integration, providing multiple services in a cost-optimized configuration. Maxwell Technologies' Ultracapacitors provide a fast response and high power density, while Aquion Energy's Aqueous Hybrid Ion (AHI) batteries provide low-cost performance and very high energy density. The integration of these ESSs along with innovative energy management algorithms into the hardware and software HESS platform allows for simultaneous solar smoothing, price arbitrage and load following, as well as peak shaving.","developer":"","electronics\_provider":"Win Inertia","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2155,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2155/Duke\_HESS.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2155/thumb\_Duke\_HESS.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2155/partner\_Duke\_HESS.jpg"}},"integrator\_company":"Aquion","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":35.2929696,"longitude":-81.0254807,"master\_project\_id":"2154:2155","name":"Duke Energy Rankin Substation - Win Inertia / Aquion Energy","om\_contractor":"","organization":null,"owner\_1":"Aquion","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://wininertia.es/projects/rankin/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Load Following (Tertiary Balancing)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":50,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"North Carolina","status":"Operational","street\_address":"458 Glendale Ave","systems\_integration":"","technology\_classification":"","technology\_type":"Sodium-ion Battery","technology\_type\_l1":"Sodium-ion Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-17T18:28:11Z","updated\_at\_by\_admin":"2016-05-17T18:28:11Z","updated\_by":null,"updated\_by\_email":null,"utility":"Duke Energy","utility\_type":"Investor Owned","vendor\_company":"Aquion","zip":"28120"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Gainesville","commissioning\_on":"2022-01-21","companion":"","construction\_on":null,"contact\_city":"Gainesville","contact\_country":"United States","contact\_email":"dwhitcraft@aclib.us","contact\_info\_visible":false,"contact\_name":"Daniel Whitcraft","contact\_phone":"(352) 334-3915 ","contact\_state":"FL","contact\_street\_address":"401 E. University Ave.","contact\_zip":"32601","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-05-16T20:20:15Z","created\_by\_id":17,"debt\_investor":"","decommissioning\_on":null,"desc":"The Alachua County Library Headquarters in Gainesville, Florida is using its IceBank® energy storage tanks to reduce operating costs and save taxpayer money. CALMAC’s technology enables the 80,000 square foot library, which was built in 1992, to shift cooling load.\r\n\r\nUsing approximately 125kW of CALMAC’s eight foot by eight foot energy storage tanks, the library is able to capitalize on significantly less expensive night-time energy, which costs $0.023 per kWh, as opposed to creating instantaneous cooling during the day that could cost as much as $0.072 per kWh. That’s a 68 percent savings just by using thermal energy storage! Additionally, with thermal storage, monthly demand (kW) could be slashed in half. That’s up to 50% off in demand charge savings by just using thermal storage! This is a significant figure since 40 percent of the headquarters’ total electric costs for the year can be directly attributed to cooling the structure, which is open seven days a week.\r\n\r\nCALMAC’s ice-storage system is paired with four different modes of operation through the structure’s Building Automation System (BAS): chiller only, ice only, combination and free cooling. The chiller only mode makes the system act as a traditional system where instantaneous cooling is created by the chiller. The ice only mode relies purely on cooling that was created and stored the previous night. Combination mode enables the building to use both stored cooling and the chiller simultaneously to meet the day’s cooling demands. Throughout the colder months, the free cooling mode can utilize outdoor air to chill the water used in the air conditioning system in place of a chiller.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2157,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2157/alachua\_county\_calmac\_ice\_thermal\_energy\_storage\_570px.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2157/thumb\_alachua\_county\_calmac\_ice\_thermal\_energy\_storage\_570px.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2157/partner\_alachua\_county\_calmac\_ice\_thermal\_energy\_storage\_570px.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":29.6517773,"longitude":-82.3210366,"master\_project\_id":null,"name":"Alachua County Library","om\_contractor":"","organization":"Alachua County Library District (ACLD)","owner\_1":"Alachua County","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.calmac.com/energy-storage-installation-alachua-county-library","primary\_reference1":"","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":125,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Florida","status":"Operational","street\_address":"401 E. 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The iron, salt, and water electrolyte was hydrated on-site as part of a two day installation and commissioning. The 60 kWh IFB system provides multiple services that will maximize the microgrid’s use of renewables. The Iron Flow Battery system installed at Stone Edge Farm has a 60 kWh energy capacity with a 10 kW, 480 VAC, 3-phase interface. \r\n\r\nThe system is self-contained in a 20’ ISO shipping container, the IFB was easily sited in an environmentally sensitive area, given its small footprint and non-toxic, non-flammable chemistry. Microgrid controls at Stone Edge are provided by DC Systems, Inc. and connect to the IFB through a MODBUS communication link. The Iron Flow Battery will receive commands from DC System’s controller responding to specific needs on the microgrid to supply power at night, for irrigation or hydrogen generation, or during the day to smooth out the intermittencies of solar on the microgrid.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2158,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2158/Stone-Edge\_FlowBatt.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2158/thumb\_Stone-Edge\_FlowBatt.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2158/partner\_Stone-Edge\_FlowBatt.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":38.2589716,"longitude":-122.4395579,"master\_project\_id":"2149","name":"Stone Edge Farm Winery- All Iron Flow Battery (IFB)","om\_contractor":"","organization":null,"owner\_1":"Stone Edge Farm","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.essinc.com/2016/05/11/ess-all-iron-flow-battery-operational-at-stone-edge-farms-microgrid/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Residential (Reliability)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"21692 8th E #110","systems\_integration":"","technology\_classification":"","technology\_type":"Flow Battery","technology\_type\_l1":"Zinc Bromine Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-05-19T18:31:26Z","updated\_at\_by\_admin":"2016-05-19T18:31:26Z","updated\_by":null,"updated\_by\_email":null,"utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"ESS Inc.","zip":"95476"}},{"project":{"announcement\_on":"2022-05-05","approval\_status":2,"city":"N/A","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"press@solarcity.com","contact\_info\_visible":false,"contact\_name":"Molly Canales ","contact\_phone":"650-963-5674","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-05-17T17:09:31Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"Brightfields Development and SolarCity announced the development of 13 megawatts (AC) of solar power systems and at least 1.5 megawatts (6.0 megawatt hours) of energy storage systems located in southern Connecticut. Connecticut Municipal Electric Energy Cooperative (CMEEC) will use the solar and stored energy generated to provide a cleaner and more resilient power infrastructure for its municipal utility members and wholesale electric customers.\r\n","developer":"Brightfields Development","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2159,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2159/1-large.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2159/thumb\_1-large.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2159/partner\_1-large.jpg"}},"integrator\_company":"SolarCity","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":41.6032207,"longitude":-73.087749,"master\_project\_id":null,"name":"Connecticut Municipal Electric Energy Cooperative (CMEEC) - SolarCity / Brightfields Development","om\_contractor":"","organization":null,"owner\_1":"PPA","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.solarcity.com/newsroom/press/cmeec-and-solarcity-install-solar-and-energy-storage","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1500,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Connecticut","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-07-01T23:01:07Z","updated\_at\_by\_admin":"2016-07-01T23:01:07Z","updated\_by":null,"updated\_by\_email":null,"utility":"Connecticut Municipal Electric Energy Cooperative","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-04-22","approval\_status":1,"city":"Espoo","commissioning\_on":"2022-10-01","companion":"","construction\_on":"2022-09-01","contact\_city":"","contact\_country":"Finland","contact\_email":"tomas.qvickstrom@fortum.com; tatu.kulla@fortum.com","contact\_info\_visible":false,"contact\_name":"Tomas Qvickstrom; Tatu Kulla","contact\_phone":"358-50-453-6298","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Finland","created\_at":"2016-05-17T17:17:12Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"Fortum is launching the Nordic countries’ biggest electricity storage pilot project incorporating Saft’s megawatt-scale Li-ion (lithium-ion) battery energy storage technology. The objective is to research the suitability of batteries used for storing electricity to maintain a power balance in the electricity system. Additionally, the research will explore new opportunities offered by electricity storage and by the flexible intermediate storage of electricity. For the project, Saft’s Li-ion containerised battery system with a nominal output of 2 megawatts (MW) and 1 megawatt hour (MWh) of energy capacity will be installed at Fortum’s Suomenoja power plant in Finland. \r\n\r\nThe battery project is an extension of Fortum’s pioneering experiment started in March in which a virtual power plant based on demand flexibility is being built together with customers. The capacity of this power plant will be offered to the national grid company Fingrid to maintain a continuous power balance in the electricity system.\r\n\r\n The planning of the Suomenoja battery project has been started, and the aim is to start the installation work during September 2016. Test use of the electricity storage is estimated to begin in October. The battery will be supplied by Saft, the world leader in the design and manufacture of advanced technology batteries for industrial applications. The project’s investment cost is about two million euros, for which Fortum will receive a 30 per cent energy investment subsidy from the Ministry of Employment and the Economy.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Equity","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":" Ministry of Employment and the Economy","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2160,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2160/388547.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2160/thumb\_388547.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2160/partner\_388547.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":60.2054911,"longitude":24.6559001,"master\_project\_id":null,"name":"Suomenoja Power Plant - Fortum / Saft","om\_contractor":"","organization":"","owner\_1":"Fortum","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.saftbatteries.com/press-releases/saft-deliver-megawatt-scale-li-ion-battery-system-fortum-largest-electricity-storage","primary\_reference1":"http://globenewswire.com/news-release/2016/04/22/831611/0/en/Fortum-continues-its-virtual-power-plant-experiment-with-the-launch-of-the-biggest-Nordic-electricity-storage-pilot-project.html?f=22&fvtc=7","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"Transmission upgrades due to solar","service\_use\_case\_5":"Transmission upgrades due to wind","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Uusimaa","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T21:41:34Z","updated\_at\_by\_admin":"2016-05-18T18:56:03Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Fortum","utility\_type":"Investor Owned","vendor\_company":"Saft","zip":""}},{"project":{"announcement\_on":"2022-05-18","approval\_status":2,"city":"Busselton","commissioning\_on":"2022-09-13","companion":"15 kW Solar PV","construction\_on":null,"contact\_city":"Perth","contact\_country":"Australia","contact\_email":"samantha@vsun.com.au","contact\_info\_visible":false,"contact\_name":"Samantha McGahan","contact\_phone":"+61 8 9321 5594","contact\_state":"WA","contact\_street\_address":"129 Edward Street","contact\_zip":"6000","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":164000.0,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-05-23T03:28:42Z","created\_by\_id":394,"debt\_investor":"","decommissioning\_on":null,"desc":"Installation of a GILDEMEISTER CellCube FB 10-100 at an agricultural property south of Busselton in Western Australia. The FB 10-100 can deliver 10 kW of power and stores 100 kWh of energy. It is a fully integrated containerised vanadium flow battery, and the first of its kind to be installed in Western Australia. \r\n\r\nThe CellCube is being installed along with a 15 kW solar PV system. Together, the system allows the client to store their unused solar energy and use it when solar power is unavailable. The storage capacity of 100 kWh means up to 10 hours of power can be provided. The client is expecting to be up to 90% self-sufficient for their power needs, but will remain connected to the grid. 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The microgrid provides enough clean energy to run the headquarters’ 12,000 square-foot Rodman Innovation Pavilion. It can operate as an independent power source or in support of the traditional electric grid, adding resilience while lowering energy costs. \r\n\r\nThe system includes two natural gas-fired microturbines that deliver onsite electrical power and heat generation. During winter months, heat is recovered from the microturbines to support climate control for the World Headquarters, the largest office building in Kansas. A geothermal heat pump system with 15 wells each drilled 500 feet deep also helps heat and cool the Pavilion. The microgrid system also uses battery technology to capture and store energy from generation resources and deliver electricity to the headquarters during times of high electric demand.\r\n\r\nThe microgrid is capable of producing about 1,300 megawatt hours of power annually. It has three rooftop solar photovoltaic panel groups—monocrystalline, polycrystalline and AC modules that use micro inverters. They provide 50 kilowatts (kW) of electricity at their peak output. The two natural gas-fired microturbines deliver 130 kW of power generation. A 100 kWh lithium-ion battery energy storage system is used. The microgrid system can be islanded from the external electric grid and helps ensure electric supplies in the event of a power outage. The microgrid also provides power to a portion of the 45 electric vehicle charging stations at the World Headquarters.\r\n","developer":"Black & Veatch","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2162,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2162/b-and-veatch1584-750xx2500-1408-0-248.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2162/thumb\_b-and-veatch1584-750xx2500-1408-0-248.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2162/partner\_b-and-veatch1584-750xx2500-1408-0-248.jpg"}},"integrator\_company":"Black & Veatch and Custom Control","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.9245145,"longitude":-94.6559204,"master\_project\_id":null,"name":"Black & Veatch World Headquarters Microgrid System","om\_contractor":"","organization":"Black & Veatch","owner\_1":"Black & Veatch","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.bv.com/our-work/microgrid-energy-storage-system-promotes-reliability-and-sustainability","primary\_reference1":"https://globenewswire.com/news-release/2015/04/28/729467/0/en/Black-Veatch-Microgrid-System-Begins-Providing-Power-to-World-Headquarters.html","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"Resiliency","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Kansas","status":"Operational","street\_address":"11401 Lamar Avenue","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-05T05:21:45Z","updated\_at\_by\_admin":"2016-06-06T17:38:16Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Kansas City Power and Light Company","utility\_type":"Public Owned","vendor\_company":"DynaPower","zip":"66211"}},{"project":{"announcement\_on":"2022-02-13","approval\_status":1,"city":"Bury","commissioning\_on":null,"companion":"","construction\_on":"2022-02-26","contact\_city":"London","contact\_country":"United Kingdom","contact\_email":"alicia.moghtader@highview-power.com","contact\_info\_visible":true,"contact\_name":"Alicia Moghtader","contact\_phone":"+44 (0)207 872 5800","contact\_state":"London","contact\_street\_address":"1 Northumberland Avenue","contact\_zip":"WC2N 5BW","contractor\_1":"Highview Power Storage","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2016-05-25T11:32:54Z","created\_by\_id":389,"debt\_investor":"","decommissioning\_on":null,"desc":"Highview and project partners, recycling and renewable energy company, Viridor, were awarded more than £8 million of funding in 2014 from the UK Government Department of Business, Energy and Industrial Strategy (BEIS), to build a 5MW Liquid Air Energy Storage (LAES) technology system. The funding is supporting the design, build and testing of a pre-commercial LAES technology demonstrator alongside Viridor’s landfill gas generation plant at Pilsworth Landfill facility in Bury, Greater Manchester. In addition to providing energy storage, the LAES plant will convert low-grade waste heat, from the GE Jenbacher landfill gas engines, to power.\r\n\r\nThe project will operate for at least 1 year and will demonstrate LAES providing a number of balancing services, including Short Term Operating Reserve (STOR), Triad avoidance (supporting the grid during the winter peaks) and testing for the US regulation market. Construction on the project began in February 2015, it is currently in commissioning and is expected to be operational in early 2018.\r\n\r\nIn August 2017, Highview was awarded £1.5 million of funding by Innovate UK, the UK’s innovation agency for a new hybrid configuration of the existing 5MW liquid air energy storage (LAES) Pre-Commercial Demonstrator. The funding will enable Highview to use supercapacitors and flywheel technology to create the hybrid LAES system. It will demonstrate LAES’s ability to respond to grid frequency events within one second, meeting the requirements of National Grid’s new enhanced frequency response (EFR) service and firm frequency response (FFR) timescales to help keep the UK grid balanced. The aim of the project is to test performance and economics and it will be operational by Summer 2018.\r\n\r\nhttps://www.youtube.com/watch?v=z3eOSApOA88\r\n\r\nhttps://www.youtube.com/watch?v=88CzngeVpDo","developer":"Highview Power Storage","electronics\_provider":"N/A","energy\_management\_software\_provider":"","funding\_amount\_1":11600000.0,"funding\_amount\_2":1500000.0,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"Federal/National","funding\_source\_3":"","funding\_source\_details\_1":"British Government Department of Business, Energy and Industrial Strategy (BEIS)","funding\_source\_details\_2":"Innovate UK","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2163,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2163/Pilsworth\_LAES\_Plant\_May\_2016.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2163/thumb\_Pilsworth\_LAES\_Plant\_May\_2016.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2163/partner\_Pilsworth\_LAES\_Plant\_May\_2016.jpg"}},"integrator\_company":"Highview Power Storage","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":53.5843377,"longitude":-2.2581689,"master\_project\_id":null,"name":"Pre-Commercial Liquid Air Energy Storage Technology Demonstrator - Highview Power Storage","om\_contractor":"","organization":"","owner\_1":"Viridor","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.highview-power.com/pre-commercial-laes-technology-demonstrator/","primary\_reference1":"https://www.greenenergynews.co.uk/highview-leading-way-development-liquid-air-energy-storage/","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Transmission Congestion Relief","service\_use\_case\_4":"Transmission Support","service\_use\_case\_5":"Voltage Support","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":5000,"size\_kwh":3.0,"size\_kwh\_hours":3,"size\_kwh\_minutes":0.0,"state":"Lancashire","status":"Under Construction","street\_address":"Pilsworth Power Plant, Moss Hall Road","systems\_integration":"","technology\_classification":"","technology\_type":"Liquid Air Energy Storage","technology\_type\_l1":"Liquid Air Energy Storage","technology\_type\_l2":"Liquid Air Energy Storage","technology\_type\_l3":"Liquid Air Energy Storage","updated\_at":"2017-11-21T22:37:30Z","updated\_at\_by\_admin":"2016-07-22T00:05:18Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Electricity North West","utility\_type":"Investor Owned","vendor\_company":"Highview Power Storage ","zip":"BL9 7JL"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Honolulu","commissioning\_on":"2022-05-06","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"sarah.mier@sunrunhome.com","contact\_info\_visible":false,"contact\_name":"Sarah Mier","contact\_phone":"415-580-6817","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-05-25T16:00:37Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"Sunrun, a residential solar company, announced the first completed installation of its Sunrun BrightBox energy storage system in the state. The Tesla battery holds solar power captured during the day so that it can be used at night.The system costs around $40,000, but after state and federal tax credits it’s closer to $20,000, Sunrun officials said. But they encourage residents to just lease the system with no out-of-pocket costs.Sunrun offers the leasing option now at 19 cents per kilowatt-hour, which is roughly 20 percent less than the current rates with Hawaiian Electric Co.\r\nThis installation is a first for the Hawaiian Electric Company’s (HECO) new Customer Self-Supply (CSS) Program. HECO helps Hawaii homeowners get the assistance they need to install a rooftop solar system with solar energy battery storage. That means they can enjoy clean, affordable solar energy anytime, at rates below their current power bill. In addition, by partnering with HECO, Sunrun can provide products like the BrightBox system for affordable monthly payments or a prepaid lease with little to no money down!\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2164,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2164/Tesla-Battery-system-Aalto-residence2-640x420.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2164/thumb\_Tesla-Battery-system-Aalto-residence2-640x420.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2164/partner\_Tesla-Battery-system-Aalto-residence2-640x420.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":21.2966667,"longitude":-157.7925,"master\_project\_id":null,"name":"Sunrun's Brightbox Residential Energy Storage-Hawaii","om\_contractor":"","organization":null,"owner\_1":"Hawaiian Electric Company","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.civilbeat.com/2016/05/solar-power-energy-storage-system-blessed/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Resiliency","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Hawaii","status":"Operational","street\_address":"Maunalani Heights","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-07-13T20:16:00Z","updated\_at\_by\_admin":"2016-07-13T20:16:00Z","updated\_by":null,"updated\_by\_email":null,"utility":"Hawaiian Electric Company","utility\_type":"Investor Owned","vendor\_company":"","zip":"96816"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"San Diego","commissioning\_on":"2022-11-12","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"asmith@greencharge.net","contact\_info\_visible":false,"contact\_name":"Anne Smith","contact\_phone":"408-313-8089","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-05-26T15:32:32Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"Green Charge Networks owns, operates, and maintains the system for Mike Hess Brewing Company over a ten year term. The 30 kW / 60 kWh energy storage system now takes up a spot equivalent to one shipping pallet. Smart control software signals a discharge of the Li-Ion batteries when demand is high and power expensive. During periods of low demand, the system recharges. On average, energy storage at the North Park brewery is projected to reduce demand charges by 35 percent.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2166,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2166/MikeHess\_IMG\_6870.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2166/thumb\_MikeHess\_IMG\_6870.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2166/partner\_MikeHess\_IMG\_6870.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.7477019,"longitude":-117.1285289,"master\_project\_id":null,"name":"Mike Hess Brewing- Green Charge Networks","om\_contractor":"","organization":null,"owner\_1":"Green Charge Networks","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"35% Reduction in Demand Charges","primary\_reference":"http://www.greencharge.net/wp-content/uploads/2015/11/CS\_MikeHessBrewing\_1113\_D.pdf","primary\_reference1":null,"projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time 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River","commissioning\_on":"2022-10-30","companion":"","construction\_on":"2022-05-31","contact\_city":"","contact\_country":"","contact\_email":"bismarck@qinous.com","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-05-30T12:39:15Z","created\_by\_id":305,"debt\_investor":"","decommissioning\_on":null,"desc":"A 1 MWp solar power plant with the grid-forming battery storage system by Qinous (800 kW / 2,000 kWh) will generate about 50% of the electricity consumed by the remote community Nauiyu (Daly River) in the Northern Territories emission-free.","developer":"","electronics\_provider":"Qinous GmbH","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"ARENA","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2167,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2167/offgrid\_Australia\_1200x600.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2167/thumb\_offgrid\_Australia\_1200x600.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2167/partner\_offgrid\_Australia\_1200x600.png"}},"integrator\_company":"Qinous GmbH","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-13.6126744,"longitude":130.507345,"master\_project\_id":null,"name":"Nauiyu (Daly River) Solar Project","om\_contractor":"Qinous GmbH","organization":"Qinous GmbH","owner\_1":"Customer","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://qinous.de/references/community-electrification-australia/","primary\_reference1":"http://www.pv-magazine.com/services/press-releases/details/beitrag/qinous-delivers-an-800-kw-battery-system-to-an-aboriginal-community-in-australia\_100023731/#axzz4DCVJ7pqn","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"ARENA was established to make renewable energy solutions more affordable and increase the supply of renewable energy in Australia.","research\_institution":"ARENA","research\_institution\_link":"http://arena.gov.au/","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Onsite Renewable Generation 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GmbH","zip":""}},{"project":{"announcement\_on":"2022-05-15","approval\_status":1,"city":"Amsterdam","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-10-01","contact\_city":"Munich","contact\_country":"Germany","contact\_email":"marcus.fendt@mobilityhouse.com","contact\_info\_visible":false,"contact\_name":"Marcus Fendt","contact\_phone":"+498941614312","contact\_state":"Bavaria","contact\_street\_address":"St.-Martin-Str. 63","contact\_zip":"81669","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Netherlands","created\_at":"2016-06-03T16:25:36Z","created\_by\_id":397,"debt\_investor":"","decommissioning\_on":null,"desc":"A 4 MW stationary storage will be established at Johan Cruyff ArenA for PV integration and backup power purposes. During idle time, The Mobility House markets the capacity to the Netherlands/German frequency regulation market thus increasing revenue and shorten amortization time.","developer":"The Mobility House","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2168,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2168/amsterdam-arena-zonlicht-750x460.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2168/thumb\_amsterdam-arena-zonlicht-750x460.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2168/partner\_amsterdam-arena-zonlicht-750x460.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":52.3143354,"longitude":4.9417926,"master\_project\_id":null,"name":"Johan Cruyff ArenA Storage - The Mobility House","om\_contractor":"","organization":"","owner\_1":"Johan Cruyff ArenA","owner\_2":"The Mobility House","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available","primary\_reference":"http://mobilityhouse.com/en/mobility-house-realizes-4-mw-stationary-storage-amsterdam-arena","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"On-Site Power","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"Resiliency","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":4000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Amsterdam","status":"Operational","street\_address":"ArenA Boulevard 1","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-28T16:40:36Z","updated\_at\_by\_admin":"2016-06-03T21:18:07Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Liandon","utility\_type":"","vendor\_company":"","zip":"1101"}},{"project":{"announcement\_on":"2022-05-31","approval\_status":2,"city":"Dalian","commissioning\_on":"2021-12-31","companion":"","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"United States","contact\_email":"rick.winter@uetechnologies.com ","contact\_info\_visible":false,"contact\_name":"Rick Winter","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2016-06-06T19:20:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The battery arrays approved by the China National Energy Administration will be made up of ten (10X) 20MW/80MWh Vanadium Flow Battery (VFB) energy storage systems deployed in Dalian city and connected to the main grid of Liaoning Province which has experienced stress during extreme weather events. After full commissioning, the VFB energy storage system will be able to peak-shave approximately 8% of Liaoning Province's expected peaking capacity in 2020.In addition, the large-scale battery will form an additional load center, which will enhance grid stabilization including securing the power supply and providing black-start capabilities in the event of emergency.\r\n\r\nThis project will be deployed in two phases, each with 100MW/400MWh. The first phase will be finished around the end of 2017 and the second will be finished around the end of 2018. This project is approved by China National Energy Administration, and the owner is a JV with the major shareholder being a local utility company, and the minor being RONGKE POWER. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2169,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2169/Rongke.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2169/thumb\_Rongke.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2169/partner\_Rongke.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.914003,"longitude":121.614682,"master\_project\_id":null,"name":"Dalian VFB - UET / Rongke Power","om\_contractor":"","organization":"","owner\_1":"China National Energy Administration","owner\_2":"Rongke Power","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.uetechnologies.com/news/72-unienergy-technologies-strategic-partner-to-deliver-world-s-largest-battery","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Black Start","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"Resiliency","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":200000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Liaoning","status":"Under Construction","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Dalian Vanadium Flow Battery Peaking-shaving Station","technology\_type\_l1":"Flow Battery","technology\_type\_l2":"Vanadium Redox Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-09T01:45:40Z","updated\_at\_by\_admin":"2017-10-23T19:13:52Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Federally Owned","vendor\_company":"UET / Rongke Power","zip":""}},{"project":{"announcement\_on":"2022-06-15","approval\_status":1,"city":"Koblenz ","commissioning\_on":"2022-07-15","companion":"","construction\_on":"2022-06-22","contact\_city":"","contact\_country":"","contact\_email":"thomas.adler@bugag.de; info@vanadiumredoxflow.com","contact\_info\_visible":false,"contact\_name":"Thomas Adler","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2016-06-15T12:54:51Z","created\_by\_id":399,"debt\_investor":"","decommissioning\_on":null,"desc":"200 kW / 800 kWh High duty Vanadium Redox Flow Energy Storage System ","developer":"Solibra Energy Storage Technologies Gmbh","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2170,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":50.3569429,"longitude":7.5889959,"master\_project\_id":null,"name":"VRB ESS Green Vision ","om\_contractor":"","organization":"","owner\_1":"N/A","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.vanadiumredoxflow.com","primary\_reference1":"","projected\_lifetime":"25.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"Load Following (Tertiary Balancing)","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":200,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Rheinland Pfalz ","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Flow Battery","technology\_type\_l1":"Flow Battery","technology\_type\_l2":"Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-23T23:33:20Z","updated\_at\_by\_admin":"2017-10-23T23:33:20Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-06-14","approval\_status":1,"city":"Rwanda","commissioning\_on":null,"companion":"3.3 MW solar photovoltaic (PV) power plant","construction\_on":null,"contact\_city":"","contact\_country":"Germany","contact\_email":"neuhaeuser@sunbeam-communications.com","contact\_info\_visible":false,"contact\_name":"Vera Neuhäuser","contact\_phone":"Tel. +49 30 – 72 62 96 – 449 Mobil +49 178 – 53 68 425","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Rwanda","created\_at":"2016-06-15T22:27:46Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Tesvolt is set to supply a total of 134 fully assembled lithium storage systems for the 44 water pumps. The storage system will supply the irrigation project with clean and safe emergency power, also boosting yields in local agriculture.\r\n\r\nThis should improve the living conditions of around 2,000 farmers, who currently live in extreme poverty. In total, 402 Sunny Island charge controllers from SMA are to be deployed for the project. In the event of power cuts, the storage system will act as a mini-grid, enabling the PV power plant to continue running.","developer":"","electronics\_provider":"SMA","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2171,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2171/TESVOLT-TLC500-front.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2171/thumb\_TESVOLT-TLC500-front.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2171/partner\_TESVOLT-TLC500-front.jpg"}},"integrator\_company":"IdeemaSun Energy","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-1.940278,"longitude":29.873888,"master\_project\_id":null,"name":"Rwanda Tesvolt Off-Grid ESS","om\_contractor":"","organization":null,"owner\_1":"TESVOLT","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.tesvolt.com/tesvolt-supplies-rwanda-with-the-worlds-largest-off-grid-battery-system.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"Resiliency","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2680,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Rwanda","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-07-22T18:17:42Z","updated\_at\_by\_admin":"2016-07-22T18:17:42Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-06-15","approval\_status":2,"city":"Brooklyn","commissioning\_on":null,"companion":"1.8 MW Solar PV ","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"jfortune@sunverge.com; ssingleton@sunverge.com","contact\_info\_visible":false,"contact\_name":"Jon Fortune (Director, Regulatory & Energy Services); Sarah Singleton","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":15000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2016-06-15T23:13:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"U.S. solar power company SunPower launched a new rooftop solar+storage bundle package designed to create a ‘virtual power plant’ in New York comprising 1.8 MW PV capacity and 4 MWh of battery storage. \r\n\r\nThe $15 million project is part of New York’s Reforming the Energy Vision (REV) effort, and sees Sunverge Energy Inc supply its lithium-ion battery storage systems, SunPower leases its solar panels and utility Con Edison manage the stored power’s grid feed.\r\n\r\nThe Idea behind the project is to integrate more solar energy into the local grid, with Con Edison able to dispatch stored power to customers during peak periods, while if a blackout occurs the energy in the batteries can be used by the homeowners.\r\n\r\nThis pilot program will be available to more than 300 residential customers in New York’s Brooklyn and Queens boroughs, with Con Edison targeting owner-occupied, single-family homes. Participants that sign up to lease SunPower’s solar systems (ranging from 7 kW to 9 kW) will receive a suitably sized battery from Sunverge – the company is offering its 6 kWh and 19.4 kWh storage systems.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"New York Reforming the Energy Vision (REV)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2172,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2172/SunPower\_NYC.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2172/thumb\_SunPower\_NYC.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2172/partner\_SunPower\_NYC.jpg"}},"integrator\_company":"SunPower","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.6781784,"longitude":-73.9441579,"master\_project\_id":null,"name":"Con Edison Virtual Power Plant - SunPower / Sunverge","om\_contractor":"","organization":"","owner\_1":"Con Edison","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.pv-magazine.com/news/details/beitrag/sunpower--sunverge-collaborate-on-4-mwh-solarstorage-project-in-new-york\_100024988/#axzz4BflnUaOx","primary\_reference1":"http://www.coned.com/energyfuture/pdf/virtual-power-plant-vpp.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"Resiliency","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1800,"size\_kwh":2.21666666666667,"size\_kwh\_hours":2,"size\_kwh\_minutes":13.0,"state":"New York","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-18T23:27:37Z","updated\_at\_by\_admin":"2016-08-18T23:27:37Z","updated\_by":null,"updated\_by\_email":null,"utility":"Consolidated Edison Company of New York (Con Edison)","utility\_type":"Investor Owned","vendor\_company":"Sunverge","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Mission Viejo","commissioning\_on":"2022-06-14","companion":"Solar PV","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"David.wieland@jlmei.com; ellen.howe@jlmei.com; dconger@franserv.com; ddenton@franserv.com","contact\_info\_visible":false,"contact\_name":"David Wieland; Ellen Howe (JLM Energy); Dan Conger (Franchise Services); Denise Denton (Franchise Services)","contact\_phone":"703-835-5550","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":450000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2016-06-16T00:01:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Franchise Services occupies a 44,000 square foot office building in Mission Viejo and has an annual electricity expenditure of $120,000. The new commercial grade Gridz system combines two 30 kW/60 kWh battery systems with solar panels. The company qualified for California's SGIP rebate as well as the Federal Incentive Tax Credit for energy storage systems. The $450,000 system quickly became a $290,000 system net of tax and incentives. \r\n\r\nDan Conger, Chief Financial Officer, expects a rapid return on investment. \"We estimate that implementing solar and energy storage will cut our utility expense by 75%,\" Conger said. Our calculations show the break-even point on this system is 48-months.\"","developer":"JLM Energy","electronics\_provider":"JLM Energy","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Self-Generation Incentive Program (SGIP)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2173,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2173/FranchiseServices.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2173/thumb\_FranchiseServices.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2173/partner\_FranchiseServices.png"}},"integrator\_company":"JLM Energy","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.5651213,"longitude":-117.6641341,"master\_project\_id":null,"name":"Franchise Services - JLM Energy","om\_contractor":"","organization":null,"owner\_1":"Franchise Services, Inc.","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"Estimated 4 year payback","primary\_reference":"http://www.econotimes.com/Mission-Viejo-business-Franchise-Services-invests-in-solar-plus-energy-storage-to-drastically-reduce-utility-bills-and-eliminate-hefty-demand-charges-221561","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":60,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"26722 Plaza Dr","systems\_integration":"","technology\_classification":"","technology\_type":"Valve Regulated Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-02T21:59:27Z","updated\_at\_by\_admin":"2016-08-02T21:59:27Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"JLM Energy","zip":"92691"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Westminster ","commissioning\_on":"2022-07-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"rlin@neces.com","contact\_info\_visible":false,"contact\_name":"Roger Lin","contact\_phone":"508-497-7261","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-06-16T22:59:03Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"This demo site for Southern California Edison included engineering services for controls and application development.\r\n- Frequency Regulation \r\n- 4 MW Power Capability\r\n- 1 MWh Energy Capacity\r\n- Two Containers with Integrated Inverters\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2174,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2174/Westminster-CA-300x189.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2174/thumb\_Westminster-CA-300x189.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2174/partner\_Westminster-CA-300x189.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.7513419,"longitude":-117.9939921,"master\_project\_id":null,"name":"NEC 4 MW / 1 MWh GSS","om\_contractor":"","organization":"","owner\_1":"Southern California 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Owned","vendor\_company":"NEC","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Hangzhou","commissioning\_on":"2022-03-01","companion":"Wind, Solar","construction\_on":null,"contact\_city":"","contact\_country":"China","contact\_email":"johnzhang@wxresources.com","contact\_info\_visible":false,"contact\_name":"John Zhang","contact\_phone":"86-21-20800898","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2016-06-16T23:30:07Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"A building-based 500kW HR GSS located in Hangzhou and is operated by Dongfang Electric Machinery Co. Ltd., to help integrate on-site renewable generation including wind and solar as well as traditional combustion generation at the site’s microgrid. China, with its growing infrastructure needs, has some of the largest public works projects in the world related to power generation and transmission, and has installed large amounts of renewable generation that could benefit greatly from the introduction of large-scale energy storage alongside traditional grid assets. 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Ltd.","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.neces.com/our-experience/project/hangzhou-china-2/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Transmission upgrades due to solar","service\_use\_case\_4":"Transmission upgrades due to wind","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Zhejiang","status":"Operational","street\_address":"188 Huanghe West Road. ","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-26T20:07:43Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Puxing Energy","utility\_type":"Investor Owned","vendor\_company":"Dong Fang Electric Machinery","zip":""}},{"project":{"announcement\_on":"2022-06-22","approval\_status":1,"city":"Irvine","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"info@blackbearenergy.com; atorbin@blackbearenergy.com","contact\_info\_visible":false,"contact\_name":"Perry Schoenfeld (Principal and COO of LBA Realty); Drew Torbin (Black Bear Energy)","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-06-23T23:55:01Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"A 1.3 MW indoor energy storage system will be installed and completed by the end of this year at an Irvine, CA, mixed-used corporate complex with 2.1 million square feet of space. When it is finished, the Stem energy system will be the largest indoor energy storage installation in the United States. The complex is called Park Place, and is owned by LBA Realty.","developer":"Black Bear Energy","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2178,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2178/LBA\_ParkPlace.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2178/thumb\_LBA\_ParkPlace.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2178/partner\_LBA\_ParkPlace.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.674252,"longitude":-117.8446963,"master\_project\_id":null,"name":"Park Place LBA Realty - Stem","om\_contractor":"","organization":"","owner\_1":"Stem","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.stem.com/lba-realty-and-principal-real-estate-investors-to-deploy-nations-largest-indoor-energy-storage-system-at-park-place/","primary\_reference1":"http://www.stem.com/customers/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1500,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"3121 Michelson Drive","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-01T01:38:32Z","updated\_at\_by\_admin":"2016-07-28T21:46:31Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Stem","zip":"92612"}},{"project":{"announcement\_on":"2022-06-22","approval\_status":1,"city":"Long Beach","commissioning\_on":"2022-11-01","companion":"","construction\_on":"2022-08-01","contact\_city":"","contact\_country":"","contact\_email":"jacobm@advmicrogrid.com ","contact\_info\_visible":false,"contact\_name":"Jake Monroe","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-06-24T00:46:47Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"AMS will oversee the design, installation and operation of a 1 Megawatt (MW) energy storage system at the CSU’s Long Beach campus. AMS is also anticipated to install two behind-the-meter energy storage systems at the CSU’s Office of the Chancellor and Dominguez Hills campus. With a standardized contract and offering, additional campuses will benefit from ease of enrollment into the AMS storage “program.”\r\n\r\nAMS will break ground at CSU Long Beach this summer with an expected completion date of October 2016. Construction at the Office of the Chancellor is anticipated to begin in early 2017 and be completed by mid 2017. ","developer":"","electronics\_provider":"Dynapower","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2179,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2179/calstatelongbeach.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2179/thumb\_calstatelongbeach.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2179/partner\_calstatelongbeach.jpg"}},"integrator\_company":"Advanced Microgrid Solutions (AMS)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.7830608,"longitude":-118.1148909,"master\_project\_id":null,"name":"California State University Long Beach Campus - AMS","om\_contractor":"","organization":"","owner\_1":"-","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The projects across the three sites will reduce the CSU’s electric utility costs by more than $3.3 million and will store enough energy to power 2,000 homes.","primary\_reference":"https://www2.calstate.edu/csu-system/news/Pages/California-State-University-and-Advanced-Microgrid-Solutions-Announce-a-Portfolio-of-State-of-the-Art-Hybrid-Electric-Build.aspx","primary\_reference1":"http://advmicrogrid.com/projects.html","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1000,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"1250 Bellflower Blvd","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-04T05:36:02Z","updated\_at\_by\_admin":"2016-06-24T16:49:07Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Tesla","zip":"90840"}},{"project":{"announcement\_on":"2022-06-22","approval\_status":1,"city":"Long Beach","commissioning\_on":"2022-04-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jacobm@advmicrogrid.com ","contact\_info\_visible":false,"contact\_name":"Jake Monroe","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-06-24T01:07:06Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Construction at the Chancellor’s Office is expected to begin early next year, with commissioning in April 2017.\r\n\r\nAMS is installing two other behind-the-meter energy storage systems at the CSU Long Beach campus and Dominguez Hills campus. With a standardized contract and offering, additional campuses will benefit from ease of enrollment into the AMS storage “program.”","developer":"Advanced Microgrid Solutions (AMS)","electronics\_provider":"Dynapower","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2180,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2180/ChancellorOffice.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2180/thumb\_ChancellorOffice.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2180/partner\_ChancellorOffice.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.7641346,"longitude":-118.2013207,"master\_project\_id":null,"name":"California State University Chancellor's Office - Advanced Microgrid Solutions","om\_contractor":"","organization":"Advanced Microgrid Solutions (AMS)","owner\_1":"-","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://advmicrogrid.com/projects.html","primary\_reference1":"https://www2.calstate.edu/csu-system/news/Pages/California-State-University-and-Advanced-Microgrid-Solutions-Announce-a-Portfolio-of-State-of-the-Art-Hybrid-Electric-Build.aspx","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":250,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"401 Golden Shore","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-02T06:27:48Z","updated\_at\_by\_admin":"2016-06-28T19:47:29Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Tesla","zip":"90802"}},{"project":{"announcement\_on":"2022-06-07","approval\_status":1,"city":"Mainz","commissioning\_on":"2022-07-02","companion":"4 x 2 MW Wind Park","construction\_on":"2022-04-30","contact\_city":"","contact\_country":"","contact\_email":"christoph.stiller@linde.com","contact\_info\_visible":false,"contact\_name":"Christoph Stiller","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":19000000.0,"cost\_OPEX":null,"country":"Germany","created\_at":"2016-06-27T14:29:34Z","created\_by\_id":403,"debt\_investor":"","decommissioning\_on":null,"desc":"Energiepark Mainz is the world's first multi-MW PEM electrolysis based power-to-gas project. It features about 6 MWel of peak capacity and 4 MWel continuous capacity. The produced hydrogen is compressed by an ionic compressor, stored onsite and filled into trailers and injected into the natural gas grid.\r\n\r\nhttp://www.energiepark-mainz.de/wissen/technologie/\r\n\r\nhttp://www.energiepark-mainz.de/wissen/technische-daten/","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"German Federal Ministry for Economic Affairs and Energy","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2181,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2181/energieparkmainz-2048.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2181/thumb\_energieparkmainz-2048.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2181/partner\_energieparkmainz-2048.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":49.9928617,"longitude":8.2472526,"master\_project\_id":null,"name":"Energiepark Mainz","om\_contractor":"","organization":"Linde AG","owner\_1":"Stadtwerke Mainz AG","owner\_2":"Linde AG","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.energiepark-mainz.de","primary\_reference1":"http://www.energiepark-mainz.de/artikel-detailseite/article/wasserstoff-vorzeigeprojekt-laeuft-erfolgreich/","projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"RheinMain University of Applied Sciences","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Load Following (Tertiary Balancing)","service\_use\_case\_3":"Ramping ","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_6":"Transmission Congestion Relief","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":6000,"size\_kwh":4.33333333333333,"size\_kwh\_hours":4,"size\_kwh\_minutes":20.0,"state":"Rheinland-Pfalz","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Hydrogen Storage","technology\_type\_l1":"Hydrogen Storage","technology\_type\_l2":"Hydrogen Storage","technology\_type\_l3":"Hydrogen Storage","updated\_at":"2017-12-22T06:30:08Z","updated\_at\_by\_admin":"2016-07-01T00:44:10Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Mainzer Stadtwerke AG","utility\_type":"State/Municipal Owned","vendor\_company":"Siemens AG / Linde AG","zip":""}},{"project":{"announcement\_on":"2022-06-22","approval\_status":2,"city":"Carson","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jacobm@advmicrogrid.com ","contact\_info\_visible":false,"contact\_name":"Jake Monroe","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-06-27T22:41:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Construction at the California State University Dominguez Hills is expected to begin next year, with commissioning in June 2017. \r\n\r\nAMS is installing two other behind-the-meter energy storage systems at the CSU Long Beach campus and CSU Chancellor's Office. With a standardized contract and offering, additional campuses will benefit from ease of enrollment into the AMS storage “program.”","developer":"Advanced Microgrid Solutions (AMS)","electronics\_provider":"Dynapower","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2182,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2182/CSUDH.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2182/thumb\_CSUDH.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2182/partner\_CSUDH.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.8624657,"longitude":-118.2545425,"master\_project\_id":null,"name":"California State University Dominguez Hills Campus - AMS","om\_contractor":"","organization":null,"owner\_1":"-","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.thecountrycaller.com/53678-tesla-motors-inc-tsla-wins-12mwh-powerpack-contract-with-cal-state-university/","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":750,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"1000 E Victoria St","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-28T19:48:00Z","updated\_at\_by\_admin":"2016-06-28T19:48:00Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Tesla","zip":"90747"}},{"project":{"announcement\_on":"2022-06-28","approval\_status":1,"city":"San Francisco","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"jacobm@advmicrogrid.com ","contact\_info\_visible":false,"contact\_name":"Jake Monroe","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-06-28T18:18:55Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Building owner Morgan Stanley Real Estate Investing hired SF-based Advanced Microgrid Solutions, to design, build and operate the project. The 500 kilowatt / 1,000 kilowatt-hour indoor battery system will provide One Maritime Plaza with the ability to store clean energy and control demand from the electric grid. \r\n\r\nThe technology enables the building to shift from grid to battery power to conserve electricity in the same way a hybrid-electric car conserves gasoline. The energy storage system at One Maritime Plaza will reduce the building’s peak energy demand by as much as twenty percent.\r\n\r\nThe project is expected to be completed by January 1, 2018.\r\n\r\nhttp://advmicrogrid.com/projects.html","developer":"Advanced Microgrid Solutions (AMS)","electronics\_provider":"Dynapower","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2183,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2183/1MaritimePlaza.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2183/thumb\_1MaritimePlaza.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2183/partner\_1MaritimePlaza.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":37.7954528,"longitude":-122.399213,"master\_project\_id":null,"name":"One Maritime Plaza - Advanced Microgrid Solutions (AMS)","om\_contractor":"","organization":"Advanced Microgrid Solutions (AMS)","owner\_1":"Morgan Stanley","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"The energy storage system will reduce the building’s peak energy demand by as much as twenty percent.","primary\_reference":"http://advmicrogrid.com/projects.html","primary\_reference1":"http://www.prnewswire.com/news-releases/landmark-skyscraper-one-maritime-plaza-to-become-san-franciscos-first-hybrid-electric-building-300290967.html","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":500,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"300 Clay Street","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-25T04:57:09Z","updated\_at\_by\_admin":"2016-07-01T22:40:43Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Pacific Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Tesla","zip":"94111"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Statesville","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"Linden's Handbook of Batteries","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-06-28T22:16:08Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-05-01","desc":"The Crescent battery was obtained for a peak shaving application and represents the first application of battery energy storage for electric utility applications on the US Electric grid. The battery was originally installed in 1983 at the Battery Energy Test Facility (BEST) that was built in the Public Service Electric and Gas (PSE&G) NJ service area as a joint venture of EPRI and the US Department of Energy (with PSE&G as the host utility), to establish a laboratory for testing large stationary batteries for electric utility applications. After completing an initial test phase, during which this battery was used for a few hundred charge-discharge cycles, it was purchased by the North Caronlina Electric Membership Cooperative (EMC) and moved to the Crescent EMC location in Statesville, NC, in 1987.\r\n\r\nAs of 1995, the battery had performed its intended function and saved Crescent EMC over $223,000. Capacity tests performed around 1999 confirmed that the cells still retained their original capacity of over 2000 Ah. It is also pertinent to note that the battery was installed in a modest, metal, prefabricated building, was cooled only with ambient air ventilation, and required minimal routine maintenance during its operational life.\r\n\r\nIn May 2002, after a significant battery overcharge and likely damage, EnergyUnited performed an analysis of the system and made a business decision to decommission the BESS.\r\n","developer":"","electronics\_provider":"Firing Circuits","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2184,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2184/EnergyUnited.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2184/thumb\_EnergyUnited.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2184/partner\_EnergyUnited.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.7826363,"longitude":-80.8872959,"master\_project\_id":null,"name":"Crescent Electric Membership Cooperative BESS","om\_contractor":"","organization":null,"owner\_1":"Crescent Electric Membership Cooperative (now EnergyUnited)","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"As of 1995, the battery had saved Crescent EMC over $223,000","primary\_reference":"http://www.osti.gov/scitech/servlets/purl/453759/","primary\_reference1":null,"projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"North Carolina","status":"De-Commissioned","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-28T22:17:33Z","updated\_at\_by\_admin":"2016-06-28T22:17:24Z","updated\_by":null,"updated\_by\_email":null,"utility":"Crescent Electric Membership Cooperative (now EnergyUnited)","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"GNB Industrial Battery (now Exide Battery)","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Berlin","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"Linden's Handbook of Batteries (p.30.19)","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2016-06-28T22:56:06Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-01-01","desc":"The BEWAG battery was the largest battery for utility applications in the world at the time it was commissioned. It was installed to provide frequency regulation and spinning reserve to the West Berlin grid when East and West Berlin were still divided, which technically created an electrical \"island\" grid since West Berlin was not connected to the grid in Western Europe. The battery system operated in the multifunction frequency regulation adn spinning reserve mode until 1993, when the frequency regulation mode was no longer needed after the reunification, and West Berlin was connected to the European grid.\r\n\r\nThe battery remained in operation until 1995, in the spinning reserve mode, when it reached its end of life. ","developer":"","electronics\_provider":"AEG","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2185,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2185/bewag.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2185/thumb\_bewag.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2185/partner\_bewag.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":52.5200066,"longitude":13.404954,"master\_project\_id":null,"name":"Berliner Kraft- und Licht BEWAG Battery","om\_contractor":"","organization":null,"owner\_1":"BEWAG","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"It is estimated that the BEWAG battery had an energy throughput almost 7000 times its rated capacity, or approximately 100 GWh during its 9-year life.","primary\_reference":"http://unesdoc.unesco.org/images/0009/000916/091670eo.pdf","primary\_reference1":null,"projected\_lifetime":"9.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":8500,"size\_kwh":1.66666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":40.0,"state":"Berlin","status":"De-Commissioned","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-29T02:06:24Z","updated\_at\_by\_admin":"2016-06-29T02:06:24Z","updated\_by":null,"updated\_by\_email":null,"utility":"BEWAG","utility\_type":"","vendor\_company":"Hagen OCSM cells","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Chino","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"Linden's Handbook of Batteries (p.30.19)","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-06-28T23:25:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-01-01","desc":"The Chino battery system was a jointly sponsored project by EPRI, the US DOE, and the International Lead Zinc Research Organization (ILZRO), with Southern California Edison (SCE) as the host utility. It was an early demonstration of a utility-scale battery energy storage system for multiple applications. At the time of its completion, this became the largest utility battery energy storage system in the world. It was not until the PREPA battery and later the Fairbanks battery systems were commissioned that this distinction was earned by these projects, in 1994 and 1999, respectively.","developer":"","electronics\_provider":"GE","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2186,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2186/Southern\_California\_Edison.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2186/thumb\_Southern\_California\_Edison.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2186/partner\_Southern\_California\_Edison.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.9985758,"longitude":-117.6813173,"master\_project\_id":null,"name":"SCE Chino Battery Storage Project","om\_contractor":"","organization":null,"owner\_1":"Southern California Edison","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=TR-101786","primary\_reference":"https://www.edison.com/content/dam/eix/documents/innovation/smart-grids/Energy-Storage-Concept-to-Reality-Edison.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Stationary Transmission/Distribution Upgrade Deferral","service\_use\_case\_3":"Transmission Support","service\_use\_case\_4":"Voltage Support","service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":10000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"De-Commissioned","street\_address":"14005 Benson Ave","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-28T23:25:46Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Exide Batteries","zip":"91710"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Homerville","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"Linden's Handbook of Batteries (p.30.22)","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-06-29T02:46:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":"2022-01-01","desc":"The PQ2000 battery system was designed to be a factory-assembled, transportable unit that would protect an entire facility from power disturbances. Until this system was introduced, uninterruptable power supply (UPS) systems protected only a single piece of equipment or small group of items. The PQ2000 system detected variations in fupply voltage at the utility interface, adn should the utility voltage exceed the voltage limits (either high or low), the system disconnected from the utility and typically occurred in 8 to 25 ms. The 15 second duration of battery power is sufficicient to correct over 80% of the voltage sags occurring on a typical utility. After the utility returned to normal, the PQ2000 resynchronized with the utility AC-wave form and returned the facility to utility power. A diesel generator backup was added as an option to allow for extended outage protection.\r\n\r\nA number of prototype tests were conducted, first by Pacific Gas & Electric's (PG&E) system test facility in San Ramon, California, then later at a Salt Rivier Project Facility near Phoenix, Arizona, with the support of EPRI. Through a series of acquisitions, S&C Electric continues to offer this system under the Pure Wave trade name.\r\n\r\nNote: AC Battery, acquired by Omnion Power Engineering in 1997, in turn acquired by S&C Electric in 1999.","developer":"","electronics\_provider":"AC Battery","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2187,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":31.0365983,"longitude":-82.7470849,"master\_project\_id":null,"name":"Brockway Standard Lithography Plant - PQ2000","om\_contractor":"","organization":null,"owner\_1":"Brockway Standard Lithography Plant","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.electrochem.org/dl/interface/fal/fal10/fal10\_p049-053.pdf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":0.00166666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.1,"state":"Georgia","status":"De-Commissioned","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-06-29T02:46:57Z","updated\_at\_by\_admin":"2016-06-29T02:46:53Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Delco","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Chicago","commissioning\_on":null,"companion":"","construction\_on":"2022-05-26","contact\_city":"","contact\_country":"United States","contact\_email":"carol.hanson@eaglepicher.com","contact\_info\_visible":false,"contact\_name":"Carol Hanson","contact\_phone":"4172081578","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":2000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2016-06-29T15:25:09Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"The aquarium installed a one-megawatt lithium battery weighing 30 tons on May 26. It’s the largest lithium-ion battery installed in any aquarium or zoo in the U.S.\r\nThe goal is to cut the aquarium’s energy use in half by 2020. It's part of Shedd's Master Energy Roadmap plan, a green initiative started in 2012. In addition to the installation of the giant battery, the plan calls for replacing 75 percent of the aquarium’s lights with high efficiency LED lights and implementing enhanced automation systems that can adjust electricity use based on real-time shifts in electricity pricing.\r\nThe $2 million battery will generate revenue for the Shedd by maintaining the area's electrical grid at a frequency of 60 hertz for the regional transmission organization PJM, which manages the grid. For example, if it's a cloudy day and the city's solar panels aren't generating enough electricity, the battery will distribute extra power. It will also serve as emergency back-up power for the Shedd. \r\nThe massive battery is visible to visitors from the loading dock outside or through the south Abbott Oceanarium window inside.\r\nThe battery, along with an adjoining transformer and inverter skid, were funded in part by a $500,000 grant from the Illinois Department of Commerce and Economic Opportunity (IDCEO) and installed by Schneider Electric. The remaining $1.5 million cost was covered by the Missouri-based company EaglePicher, which built the battery.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":500000.0,"funding\_amount\_2":1500000.0,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"Private/Third Party Equity","funding\_source\_3":"","funding\_source\_details\_1":"Illinois Department of Commerce and Economic Opportunity","funding\_source\_details\_2":"EaglePicher","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2188,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2188/batty.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2188/thumb\_batty.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2188/partner\_batty.jpg"}},"integrator\_company":"Schneider Electric","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":41.8676217,"longitude":-87.6136616,"master\_project\_id":null,"name":"Shedd Aquarium-1MW lithium-ion battery","om\_contractor":"","organization":"EaglePicher Technologies","owner\_1":"EaglePicher","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://chicagotonight.wttw.com/2016/06/09/shedd-installs-largest-lithium-ion-battery-any-us-aquarium-or-zoo","primary\_reference1":"https://www.valence.com/shedd-aquarium-energy-storage-system/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.283333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":17.0,"state":"Illinois","status":"Operational","street\_address":"1200 S Lake Shore Drive","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-22T05:32:52Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"EaglePicher","zip":"60605"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Penetanguishene","commissioning\_on":"2022-06-29","companion":"Robert Street Municipal Substation","construction\_on":null,"contact\_city":"Vaughan","contact\_country":"United States","contact\_email":"eric.fagen@powerstream.ca","contact\_info\_visible":false,"contact\_name":"Eric Fagen","contact\_phone":"P: 905-532-4522 M: 647-297-1273","contact\_state":"ON ","contact\_street\_address":"161 Cityview Blvd.","contact\_zip":"L4H 0A9","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2016-06-30T01:05:27Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"PowerStream, in partnership with the Korea Electric Power Corporation (KEPCO), officially launched a utility-scaled Microgrid, which has the capacity to provide several hours of backup power supply for approximately 400 customers residing or owning a business in Penetanguishene. This Microgrid is also helping to reinforce the existing grid by increasing resiliency and operational flexibility.\r\n\r\nInstalled adjacent to PowerStream's Robert Street Municipal Substation located east of the town's Main Street and connected to a distribution powerline, the system consists of a 750 kilowatt (kW) Power Conversion System, 500 kilowatt-hours (kWh) of stationary batteries, a number of automatic switches, voltage regulation devices and other grid automation equipment.","developer":"","electronics\_provider":"POSCO","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2189,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2189/PenetanguisheneMGlaunch.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2189/thumb\_PenetanguisheneMGlaunch.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2189/partner\_PenetanguisheneMGlaunch.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":44.7687678,"longitude":-79.933681,"master\_project\_id":null,"name":"PowerStream Penetanguishene Microgrid","om\_contractor":"","organization":"PowerStream","owner\_1":"PowerStream","owner\_2":"KEPCO","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.marketwired.com/press-release/powerstreams-utility-scaled-microgrid-becomes-operational-2138711.htm","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":750,"size\_kwh":0.666666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":40.0,"state":"Ontario","status":"Operational","street\_address":"Robert Street Municipal Substation","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium Polymer Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium Polymer Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-23T03:42:00Z","updated\_at\_by\_admin":"2016-06-30T17:43:48Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"PowerStream","utility\_type":"State/Municipal Owned","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":"2022-08-01","approval\_status":1,"city":"St. Paul","commissioning\_on":"2022-05-01","companion":"50 kW solar PV","construction\_on":"2022-08-01","contact\_city":"St. Paul","contact\_country":"United States","contact\_email":"gsmowry@stthomas.edu","contact\_info\_visible":false,"contact\_name":"Professor Greg Mowry","contact\_phone":"651-962-5749","contact\_state":"Minnesota","contact\_street\_address":"","contact\_zip":"55105","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-06-30T14:12:10Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"The University of St. Thomas School of Engineering will begin work this summer on a facility that will be used for teaching as well as researching and testing components used for alternative-energy microgrids.\r\n\r\nComponents of the center will be housed in or on three adjacent buildings on the university’s “south campus” in St. Paul. They are McCarthy Gymnasium, Facilities and Design Center, and Anderson Parking Facility. The St. Thomas south campus is directly south of Summit Avenue and west of Cretin Avenue.\r\n\r\nMuch of the new facility will be located on the second and basement levels of the Facilities and Design Center. About 200 solar panels will be located next door on the roof of McCarthy Gym. And generators powered by biodiesel will be located in the lower level of Anderson Parking Facility.\r\n\r\nOn sunny days, the solar panels can generate 50 kilowatts, or enough to power 10 to 15 suburban homes. Mowry expects it will take about three years for the center to be fully operational. It will be in “island mode” by 2017, which means it will be operational but not connected to the power grid. And by 2018, it will be fully connected to the region’s power grid.","developer":"Hallberg-Ryan","electronics\_provider":"Rhombus","energy\_management\_software\_provider":"University of St Thomas","funding\_amount\_1":2100000.0,"funding\_amount\_2":150000.0,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Grant","funding\_source\_2":"Private/Third Party Grant","funding\_source\_3":"","funding\_source\_details\_1":"Xcel Energy's Renewable Development Fund (RDF Grant)","funding\_source\_details\_2":"University of St. Thomas (Matching)","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2190,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2190/NRSolarPanelMowry.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2190/thumb\_NRSolarPanelMowry.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2190/partner\_NRSolarPanelMowry.jpg"}},"integrator\_company":"University of St Thomas","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"N/A","latitude":44.9441221,"longitude":-93.1897139,"master\_project\_id":null,"name":"University of St Thomas Renewable Energy Facility - Hallberg-Ryan","om\_contractor":"","organization":"University of St Thomas","owner\_1":"University of St Thomas","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.stthomas.edu/engineering/graduate/masters/msee/","primary\_reference1":"http://www.stthomas.edu/news/work-to-begin-on-2-1-million-microgrid-research-and-testing-facility/","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"University of St Thomas","research\_institution\_link":"","service\_use\_case\_1":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":250,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Minnesota","status":"Operational","street\_address":"2115 Summit Ave","systems\_integration":null,"technology\_classification":null,"technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-02T06:56:32Z","updated\_at\_by\_admin":"2016-09-22T18:28:24Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Enersys","zip":"55105"}},{"project":{"announcement\_on":"2022-05-24","approval\_status":1,"city":"N/A","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United Kingdom","contact\_email":"rachel.anderson@res-group.com","contact\_info\_visible":false,"contact\_name":"Rachel Anderson","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United Kingdom","created\_at":"2016-06-30T14:39:12Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"National Grid, sole operator of Britain’s electricity transmission system, has contracted RES Renewable Energy Systems to install 20 MW of energy storage for dynamic frequency response on its networks. RES is one of the suppliers to have pre-qualified for the tender following a request last September that drew responses from more than 70 suppliers offering a combined capacity of more than 7 gigawatts.\r\n\r\nNational Grid’s enhanced frequency response tender is in response to a loss of inertia across the U.K. grid as coal-fired plants are retired. The grid operator is looking to buy fast-reaction capacity in blocks of between 1 megawatt and 50 megawatts per vendor, for an initial contract period of four years starting between fall 2017 and spring 2018.\r\n\r\nhttp://www.windpowermonthly.com/article/1396062/res-national-grid-agree-fast-balancing","developer":"Renewable Energy Systems (RES)","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2191,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2191/RES\_Energy\_Storage\_XL\_410\_282\_c1.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2191/thumb\_RES\_Energy\_Storage\_XL\_410\_282\_c1.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2191/partner\_RES\_Energy\_Storage\_XL\_410\_282\_c1.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":55.378051,"longitude":-3.435973,"master\_project\_id":null,"name":"UK National Grid - RES","om\_contractor":"","organization":null,"owner\_1":"PPA","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"RES’ battery storage systems will provide frequency response within one second of detection","primary\_reference":"http://www.greentechmedia.com/articles/read/UK-Developers-Surprised-by-National-Grids-Storage-Contract?utm\_source=Daily&utm\_medium=Newsletter&utm\_campaign=GTMDaily","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":20000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"N/A","status":"Contracted","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-07-26T21:46:53Z","updated\_at\_by\_admin":"2016-07-26T21:46:53Z","updated\_by":null,"updated\_by\_email":null,"utility":"National Grid (UK)","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-03-08","approval\_status":2,"city":"Albiztur","commissioning\_on":"2022-03-16","companion":"","construction\_on":null,"contact\_city":"Albiztur","contact\_country":"Spain","contact\_email":"rugarte@duttelectronics.com","contact\_info\_visible":true,"contact\_name":"Ramon Ugarte","contact\_phone":"0034 600 55 10 64","contact\_state":"Gipuzkoa","contact\_street\_address":"","contact\_zip":"20495","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2016-07-06T14:38:16Z","created\_by\_id":404,"debt\_investor":"","decommissioning\_on":null,"desc":"Dutt is a power electronics designer and manufacturer, which provides solutions to reduce peak demand charges and to facilitate the integration of renewable energies. \r\n\r\nThe storage system located at the dutt headquarters includes a 40 kW Dutt converter with a 96 kWh battery system and a dc/dc converter (10 kWp solar panel). The project is being used to perform peak shaving at the Dutt facility.","developer":"Dutt","electronics\_provider":"Dutt","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Government – RD&D","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"CDTI","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2192,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2192/dutt\_imagen.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2192/thumb\_dutt\_imagen.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2192/partner\_dutt\_imagen.png"}},"integrator\_company":"Dutt","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":43.1288551,"longitude":-2.1333628,"master\_project\_id":null,"name":"Dutt Power Electronics BESS","om\_contractor":"","organization":null,"owner\_1":"Dutt","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.duttelectronics.com","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"Yes","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Bill Management with Renewables","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":40,"size\_kwh":2.4,"size\_kwh\_hours":2,"size\_kwh\_minutes":24.0,"state":"Gipuzcoa","status":"Operational","street\_address":"Bº Urreta nº12","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-02T19:05:53Z","updated\_at\_by\_admin":"2016-08-02T19:05:53Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"U.S. Battery","zip":"20.495"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Yonkers","commissioning\_on":"2022-05-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"United States","contact\_email":"asmith@greencharge.net","contact\_info\_visible":false,"contact\_name":"Anne Smith","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-07-07T16:16:25Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"A GreenStation intelligent energy storage system was first installed at a Walgreens retail outlet in Yonkers, New York, near the banks of the Hudson River. The 27 kW / 64 kWh GreenStation is expected to save Walgreens up to 50% in demand charges in the summer when peak demand charges are high.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2193,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2193/Capture.PNG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2193/thumb\_Capture.PNG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2193/partner\_Capture.PNG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"NYISO","latitude":40.9651858,"longitude":-73.8724129,"master\_project\_id":null,"name":"Walgreens - Green Charge Network","om\_contractor":"","organization":null,"owner\_1":"Walgreens","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Reduced demand charges by up to 50% per month","primary\_reference":"http://www.forbes.com/sites/peterdetwiler/2014/03/31/green-charge-networks-in-some-markets-cost-effective-energy-storage-is-already-here/#31b7e3c54faf","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":27,"size\_kwh":2.36666666666667,"size\_kwh\_hours":2,"size\_kwh\_minutes":22.0,"state":"New York","status":"Operational","street\_address":"1220 Nepperhan Ave","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-07-27T19:09:10Z","updated\_at\_by\_admin":"2016-07-27T19:02:44Z","updated\_by":null,"updated\_by\_email":null,"utility":"Consolidated Edison Company of New York (Con Edison)","utility\_type":"Investor Owned","vendor\_company":"","zip":"10703"}},{"project":{"announcement\_on":"2022-05-26","approval\_status":1,"city":"Los Angeles","commissioning\_on":"2022-06-01","companion":"","construction\_on":"2022-10-01","contact\_city":"","contact\_country":"United States","contact\_email":"psanfield@portla.org","contact\_info\_visible":false,"contact\_name":"Phillip Sanfield","contact\_phone":"310-732-3568","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Burns & McDonnell","contractor\_2":"","contractor\_3":"","cost\_CAPEX":26600000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2016-07-11T16:24:12Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"The Port of Los Angeles, North America’s largest port, plans to install a $26. 6 million solar microgrid this year, as it moves toward becoming the first marine terminal to operate solely on renewable energy. The port is building the Green Omni Terminal Demonstration Project in partnership with Pasha Stevedoring and Terminals. It will demonstrate use of zero and near-zero emission technologies at a marine terminal.\r\n\r\nThe solar microgrid will include a 1.03 MW photovoltaic rooftop array, a 2.6 MWh battery storage system, bi-directional charging equipment, and an energy management control system.\r\nDuring a power outage, the solar microgrid will be able to island from the central grid and keep power flowing at the 40-acre facility. It also will supply energy and basic goods to the community and serve as a base of operations for the military in the event of a disaster.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":14500000.0,"funding\_amount\_2":11400000.0,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional Grant","funding\_source\_2":"Private/Third Party","funding\_source\_3":"","funding\_source\_details\_1":"California Air Resources Board (CARB)","funding\_source\_details\_2":"Pasha Stevedoring and Terminal","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2194,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2194/port-of-los-angeles-night-300x199.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2194/thumb\_port-of-los-angeles-night-300x199.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2194/partner\_port-of-los-angeles-night-300x199.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.7380087,"longitude":-118.2602462,"master\_project\_id":null,"name":"Green Omni Terminal Demonstration Project","om\_contractor":"","organization":"","owner\_1":"Pasha Stevedoring and Terminals L.P.","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Reduce 3,200 tonnes/year of greenhouse gases","primary\_reference":"https://www.pv-magazine.com/2016/07/27/port-of-los-angeles-unveils-27-million-solarstorage-microgrid-project\_100025584/","primary\_reference1":"https://www.portoflosangeles.org/pdf/green\_omni\_fact\_sheet.pdf","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"On-Site Power","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2600,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"Port of Los Angeles","systems\_integration":null,"technology\_classification":null,"technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T17:54:33Z","updated\_at\_by\_admin":"2016-08-30T16:35:39Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"BYD","zip":""}},{"project":{"announcement\_on":"2022-02-29","approval\_status":1,"city":"Arden","commissioning\_on":null,"companion":"15 MW Solar Farm and Coal Generation Facility","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"Zachary.Kuznar@duke-energy.com; WCModernization@duke-energy.com","contact\_info\_visible":false,"contact\_name":"Zachary Kuznar","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":1000000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2016-07-11T18:33:24Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"Duke Energy Progress today received approval from the North Carolina Utilities Commission (NCUC) to transition to a smarter, cleaner energy future at the Asheville Plant. The project is estimated to cost approximately $1 billion.\r\nUnder the agreement, the company plans to construct two 280-megawatt combined cycle natural gas-fueled electric generating units to replace its existing 376-megawatt coal plant, which will be retired by 2020.\r\n\r\nConstruction of the natural gas-fired combined-cycle power plants is scheduled to begin in 2016 and be in service by late 2019. The new plant will have significantly lower environmental impacts than the existing coal plant.\r\n\r\nThe company also plans to seek approval to install a minimum of 5 megawatts of utility-scale electricity storage over the next seven years. Company officials will continue to evaluate other investments in renewables and other technologies to cost-effectively meet the needs of its customers.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2195,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2195/asheville\_wcm.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2195/thumb\_asheville\_wcm.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2195/partner\_asheville\_wcm.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.478166,"longitude":-82.549154,"master\_project\_id":null,"name":"Asheville Plant - Duke Energy","om\_contractor":"","organization":null,"owner\_1":"Duke Energy","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"http://www.duke-energy.com/western-carolinas-modernization/","primary\_reference":"https://news.duke-energy.com/releases/duke-energy-progress-gains-approval-to-transition-to-a-smarter-cleaner-energy-future-at-the-asheville-plant","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":5000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"North Carolina","status":"Announced","street\_address":"10 Cp and L Dr","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-07-28T00:05:30Z","updated\_at\_by\_admin":"2016-07-28T00:05:30Z","updated\_by":null,"updated\_by\_email":null,"utility":"Duke Energy","utility\_type":"Investor Owned","vendor\_company":"","zip":"28704"}},{"project":{"announcement\_on":"2022-02-22","approval\_status":1,"city":"Hobro","commissioning\_on":"2022-09-01","companion":"","construction\_on":"2022-11-01","contact\_city":"","contact\_country":"","contact\_email":"betina@hydrogenvalley.dk ","contact\_info\_visible":false,"contact\_name":"Betina Holtze","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Denmark","created\_at":"2016-07-20T09:17:37Z","created\_by\_id":407,"debt\_investor":"","decommissioning\_on":null,"desc":"HyBalance is a project that demonstrates the use of hydrogen in energy systems. The hydrogen will be produced from water electrolysis, enabling the storage of low-priced renewable electricity from wind turbines. It will thus help balance the grid, and the renewable hydrogen will be dispensed by hydrogen stations to be used for mobility. Hydrogen will also be used in the industry.\r\n\r\nThe partners in the HyBalance project are: Air Liquide, Copenhagen Hydrogen Network (CHN), Hydrogenics, Neas Energy, Hydrogen Valley/CEMTEC and Ludwig-Bölkow-Systemtechnik (LBST). \r\n\r\nThe budget of the project reaches 15 M €, receiving funding from Fuel Cells and Hydrogen 2 Joint Undertaking and the Danish ForskEL programme. \r\n\r\nAir Liquide is the main investor and project leader of the HyBalance project. \r\n\r\nThe hydrogen plant is expected to start delivering hydrogen in autumn 2017.\r\n\r\nFor more detailed information about the HyBalance project, please visit the website www.hybalance.eu\r\nPrimary project contact: Louis Sentis from Air Liquide at louis.sentis@airliquide.com \r\n","developer":"Air Liquide Advanced Business","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"State/Provincial/Regional","funding\_source\_3":"","funding\_source\_details\_1":"Fuel Cell and Hydrogen 2 Joint Undertaking ","funding\_source\_details\_2":"ForskEL","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2196,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2196/Collage\_hires-ny.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2196/thumb\_Collage\_hires-ny.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2196/partner\_Collage\_hires-ny.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":56.6296373,"longitude":9.8171602,"master\_project\_id":null,"name":"HyBalance - Air Liquide Advanced Business","om\_contractor":"","organization":"CEMTEC/Hydrogen Valley","owner\_1":"Copenhagen Hydrogen Network","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://hybalance.eu/","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Distribution upgrade due to wind","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":1250,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"North region of Denmark ","status":"Operational","street\_address":"Jyllandsvej","systems\_integration":null,"technology\_classification":null,"technology\_type":"Hydrogen Storage","technology\_type\_l1":"Hydrogen Storage","technology\_type\_l2":"Hydrogen Storage","technology\_type\_l3":"Hydrogen Storage","updated\_at":"2017-12-01T06:10:18Z","updated\_at\_by\_admin":"2016-08-11T18:31:29Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"State/Municipal Owned","vendor\_company":"Hydrogenics","zip":"9500"}},{"project":{"announcement\_on":"2022-07-25","approval\_status":1,"city":"Pueblo","commissioning\_on":"2022-07-25","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"TDUNCAN@TRANE.COM; jwilliams@calmac.com","contact\_info\_visible":false,"contact\_name":"Todd Duncan; Jasmine Williams","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-07-25T15:14:00Z","created\_by\_id":17,"debt\_investor":"","decommissioning\_on":null,"desc":"This Pueblo facility is used for AHRI certification tests of air-cooled units from 0 to 200 tons as well as for internal and customer tests to confirm the performance of specific air-cooled water chilling systems of 20 to 500 tons. CALMAC's IceBank energy storage ice storage system serves as a battery for the facility's air-conditioning system. The ice storage tanks shift a portion of the facility’s cooling needs to off-peak periods.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2197,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2197/calmac\_ice\_storage.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2197/thumb\_calmac\_ice\_storage.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2197/partner\_calmac\_ice\_storage.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.2821073,"longitude":-104.5174477,"master\_project\_id":null,"name":"Pueblo Air Cooled Run Test Facility - Calmac","om\_contractor":"","organization":null,"owner\_1":"Ingersoll Rand","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.calmac.com/how-energy-storage-works","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":3517,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Colorado","status":"Operational","street\_address":"101 William White Blvd.","systems\_integration":null,"technology\_classification":null,"technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2016-08-02T20:15:14Z","updated\_at\_by\_admin":"2016-08-02T20:15:14Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"CALMAC Corp.","zip":"81001"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Tavascan","commissioning\_on":"2022-01-01","companion":"","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"central@tavascan.net; joserebollopentaedro@gmail.com","contact\_info\_visible":false,"contact\_name":"Jose Rebollo","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Copisa","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Spain","created\_at":"2016-07-26T22:14:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Located in the Catalan town of Tavascán, the Hydroelectric Complex Cardos Valley was built between 1959 and 1974 by the construction Copisa . The complex comprises three hydropower plants:\r\n\r\nLlavorsí hydroelectric power station. It was built between 1960 and 1966, and initially had an installed capacity of 52,000 kW .\r\n\r\nHydroelectric top Tavascán. It was built between 1962 and 1971. It had a flow rate of 14 m³ / s, a vertical drop of 875 m and a capacity of 185,000 HP.\r\n\r\nCental lower hydroelectric Tavascán. It was built between 1963 and 1971. It had a flow rate of 14 m³ / s, a vertical drop of 245 m and a capacity of 42,000 HP.\r\n\r\nMontamara hydroelectric power station. It was built between 1962 and 1971. It had a flow rate of 16 m³ / s, a vertical drop of 725 m and a capacity of 90,000 HP. Montamara is formed by two groups which act also as generation pump. It was the first reversible center of Catalonia.\r\n\r\nAlto Hydroelectric Complex Cardos consists of more than 75 km. tunnels and underground channels. They built for almost 20 years, participated in its construction more than 4,000 workers. Currently, the Central Tavascán is one of the only of these visitable features.\r\n\r\nThese plants use water mainly natural glacial lake with more capacity in the Spanish Pyrenees, Crtescans lake located 2,300 m above sea level with a capacity of 18,000,000 L of water and a depth of approximately 100 m.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2198,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2198/Pant\_\_de\_Tavascan.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2198/thumb\_Pant\_\_de\_Tavascan.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2198/partner\_Pant\_\_de\_Tavascan.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":42.644804,"longitude":1.2569148,"master\_project\_id":null,"name":"Cardos Valley Hydroelectric Complex - Montamara Power Station","om\_contractor":"","organization":null,"owner\_1":"ENEL SPA","owner\_2":"","owner\_type":null,"ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"http://tavascan.wix.com/tavascan#!tavascan/c1tsl","primary\_reference":"https://es.wikipedia.org/wiki/Complejo\_Hidroel%C3%A9ctrico\_Valle\_de\_Card%C3%B3s","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":90000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Catalonia","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Pumped Hydro Storage","technology\_type\_l1":"Pumped Hydro Storage","technology\_type\_l2":"Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-07-26T22:16:48Z","updated\_at\_by\_admin":"2016-07-26T22:16:48Z","updated\_by":null,"updated\_by\_email":null,"utility":"ENEL SPA","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-07-27","approval\_status":1,"city":"Revelstoke","commissioning\_on":null,"companion":"Transmission Line","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ward.kemerer@G7Generations.com","contact\_info\_visible":false,"contact\_name":"Ward Kemerer","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2016-07-27T00:00:43Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The premise of Hydro Battery is built on the initiative of Alberta’s NDP government to shut down its coal plants by 2030, and a desire expressed by some, including the BC Chamber of Commerce, to integrate B.C. and Alberta’s energy systems. Hydro Battery would complement Alberta’s renewable energy as it expands in the future.","developer":"G Seven Generations Ltd.","electronics\_provider":"","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2199,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2199/hydrobattery.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2199/thumb\_hydrobattery.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2199/partner\_hydrobattery.jpg"}},"integrator\_company":"Hydro Battery","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":50.998115,"longitude":-118.195672,"master\_project\_id":null,"name":" Revelstoke Hydro Battery","om\_contractor":"","organization":null,"owner\_1":"G Seven Generations Ltd.","owner\_2":"","owner\_type":null,"ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.revelstokereview.com/news/386659781.html","primary\_reference1":null,"projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":4000000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"British Columbia","status":"Announced","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Pumped Hydro Storage","technology\_type\_l1":"Pumped Hydro Storage","technology\_type\_l2":"Pumped Hydro Storage","technology\_type\_l3":"Pumped Hydro Storage","updated\_at":"2016-07-27T23:26:38Z","updated\_at\_by\_admin":"2016-07-27T00:06:18Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-07-25","approval\_status":1,"city":"Pueblo","commissioning\_on":"2022-07-25","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"TDUNCAN@TRANE.COM; jwilliams@calmac.com","contact\_info\_visible":false,"contact\_name":"Todd Duncan; Jasmine Williams","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-08-02T20:14:30Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This Pueblo facility is used for AHRI certification tests of air-cooled units from 0 to 200 tons as well as for internal and customer tests to confirm the performance of specific air-cooled water chilling systems of 20 to 500 tons. CALMAC's IceBank energy storage ice storage system serves as a battery for the facility's air-conditioning system. The ice storage tanks shift a portion of the facility’s cooling needs to off-peak periods.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2200,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2200/calmac\_ice\_storage.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2200/thumb\_calmac\_ice\_storage.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2200/partner\_calmac\_ice\_storage.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":38.2821073,"longitude":-104.5174477,"master\_project\_id":null,"name":"Pueblo West Factory Building - Calmac","om\_contractor":"","organization":"","owner\_1":"Ingersoll Rand","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"RTE 99%","primary\_reference":"http://www.trane.com/commercial/north-america/us/en/about-us/newsroom/press-releases/trane-facility-in-pueblo-celebrates-30-year-anniversary-.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Non-Spinning","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":3517,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Colorado","status":"Operational","street\_address":"101 William White Blvd.","systems\_integration":null,"technology\_classification":null,"technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2017-11-26T21:46:40Z","updated\_at\_by\_admin":"2016-08-02T20:16:27Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"CALMAC Corp.","zip":"81001"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Clovis","commissioning\_on":"2022-10-01","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"joel@mmrps.com","contact\_info\_visible":false,"contact\_name":"Joel Wilson (Senior Engineering Manager)","contact\_phone":"559-435-1036","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-08-02T20:55:47Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Located in California’s fertile San Joaquin Valley, Wawona Frozen Foods specializes in the growing and freezing of fresh fruits. Beginning as a small farm over fifty years ago, Wawona continues today as a grower, processor and major supplier of fruit and fruit products. \r\n\r\nUsing a battery system for energy storage with one or more inverters operating in parallel with the engine-driven generators presents opportunities for increased reliability, demand charge mitigation, and peak shaving of the load profile.","developer":"MMR Power Solutions","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2201,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2201/WawonaLogo\_High\_Resolution\_10-25-06.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2201/thumb\_WawonaLogo\_High\_Resolution\_10-25-06.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2201/partner\_WawonaLogo\_High\_Resolution\_10-25-06.jpg"}},"integrator\_company":"MMR Power","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":36.8438329,"longitude":-119.71335,"master\_project\_id":null,"name":"Wawona Frozen Foods - MMR Power Solutions","om\_contractor":"","organization":"MMR Power Solutions","owner\_1":"MMR Group","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.flexgen.com/press/flexGen-hybridizes-2-3mw-natural-gas-power-plant-at-wawona-foods","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":250,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"100 W. 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The system allows homes and businesses to take their electricity needs entirely off the grid. It represents a major breakthrough in controllable unit technology and is a genuine first-in-the-world solution. The MPS is groundbreaking as it permits up to three simultaneous natural inputs (solar, wind and hydro) with a single inverter – no additional controllers or complicated wiring are required. If natural energy stores are low, the MPS can also charge from the grid at night, storing power in off-peak periods to save the user money. The system achieves incredible efficiency as it has the capability to intelligently control both input and output currents, depending on specific energy needs. It is completely portable, can be retrofitted to existing solar panels, and has a short return on investment timeframe.\r\n\r\nNRG Green Co installed a 15 kW inverter mini power system inside the Tanna Island Community Clinic above the battery bank to convert the stored energy into usable 240V AC for use for medical equipment, lights, USB power points etc. This is supplemented by a 1.5 KW scroll type wind turbine. This had a large impact on the community who previously had no access to electricity at all - we provided them with a 24h supply of renewable energy which can be utilized for everyday living, educational, health and emergency power needs.","developer":"Green NRG Co","electronics\_provider":"Green NRG Co","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2202,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Green NRG Co","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-19.5154862,"longitude":169.3578201,"master\_project\_id":null,"name":"Tanna Island Renewable Energy Community","om\_contractor":"","organization":null,"owner\_1":"Vanuatu and Tafae Provincial Governments","owner\_2":"Rosebud Foundation England","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.azobuild.com/news.aspx?newsID=21327","primary\_reference1":null,"projected\_lifetime":"15.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":null,"service\_use\_case\_3":null,"service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":15,"size\_kwh":4.8,"size\_kwh\_hours":4,"size\_kwh\_minutes":48.0,"state":"Tafea Province","status":"Operational","street\_address":"Enkatalie","systems\_integration":null,"technology\_classification":null,"technology\_type":"Valve Regulated Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Valve Regulated Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-02T22:18:33Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Green NRG Co","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Basalt","commissioning\_on":"2022-01-15","companion":" 83 kW rooftop PV system ","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"ak@geli.net","contact\_info\_visible":false,"contact\_name":"Andrew Krulewitz; Jesse Morris (RMI)","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-08-02T22:38:34Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Innovation Center’s 83 kW rooftop PV system – powered by SunPower X21-335 high-efficiency modules – produces enough power for the entire building plus six electric vehicle charging stations. The PV system powers a battery storage solution consisting of a refrigerator-size LG Chem 30 kW / 45 kWh lithium-ion battery and an Ideal Power inverter, both controlled by a Geli Energy Operating System. With low electricity rates currently available through its local electric coop, RMI opted to remain connected to the grid. In the future, the Innovation Center’s power system will enable microgrid islanding, through which the building could supply its own power totally disconnected from grid.\r\n\r\nThe “brains” of the solar-plus-storage system, the Geli EOS, determines when to charge the battery (from the PV system or the grid) and when to discharge the battery to power the building. For example, if the Innovation Center draws an average of 50 kW or more from the grid in any 15-minute period during a month, the building is pushed into a rate tariff that imposes demand charges. The Geli EOS is programmed to automatically switch the system to battery power before hitting the 50 kW threshold.","developer":"Rocky Mountain Institute (RMI)","electronics\_provider":"Ideal Power","energy\_management\_software\_provider":null,"funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2203,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2203/RMI\_Innovation\_Center.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2203/thumb\_RMI\_Innovation\_Center.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2203/partner\_RMI\_Innovation\_Center.jpg"}},"integrator\_company":"Gexpro Automated by Geli","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":39.3685167,"longitude":-107.0385237,"master\_project\_id":null,"name":"Rocky Mountain Institute Innovation Center","om\_contractor":"","organization":null,"owner\_1":"Rocky Mountain Institute (RMI)","owner\_2":"","owner\_type":null,"ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"http://buildingdashboard.com/clients/rmi/innovationcenter/","primary\_reference":"http://www.triplepundit.com/2016/04/green-building-lessons-rocky-mountain-institute/#","primary\_reference1":null,"projected\_lifetime":"20.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Onsite Renewable Generation Shifting","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":30,"size\_kwh":1.5,"size\_kwh\_hours":1,"size\_kwh\_minutes":30.0,"state":"Colorado","status":"Operational","street\_address":"22826 2 Rivers Rd","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-02T22:40:06Z","updated\_at\_by\_admin":"2016-08-02T22:40:06Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"LG Chem","zip":"81621"}},{"project":{"announcement\_on":"2022-07-27","approval\_status":1,"city":"Hughenden","commissioning\_on":"2022-01-01","companion":"20 MW of solar, 30 MW of wind","construction\_on":"2022-01-01","contact\_city":"","contact\_country":"","contact\_email":"tkenning@solarmedia.co.uk (Energy Storage News)","contact\_info\_visible":false,"contact\_name":"Tom Kenning (Energy Storage News)","contact\_phone":"Tel: +61 2 6175 4600 (Windlab)","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":89800000.0,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-08-04T17:54:36Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"Australia-based renewables firm Windlab and Japan’s Eurus energy have received development approval for a hybrid project comprising 20 MW solar, 30 MW wind and a 2 MW lithium-ion battery storage system in Queensland, Australia. Construction of the AU $120 million (US $89.8 million) Kennedy Energy Park, located 20 kilometres south east of Hughenden, near the Flinders Highway, will begin in early 2017. It will include 200,000 solar panels on single-axis trackers and 9-12 wind turbines. More than 50 direct and indirect jobs will be created as well as multiple jobs during construction.\r\n\r\nWindlab plans to use this first stage of the project to prove the effectiveness of the technology and then gain support for a far larger deployment. Windlab plans to build more than 1 GW of wind and solar north of Hughenden, after completing this first stage.\r\nKennedy Energy Park will be operational early in 2018 generating enough electricity for more than 30,000 homes.\r\n","developer":"Windlab; Eurus Energy","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2204,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2204/NEC\_-\_energy\_storage\_for\_wind\_and\_solar\_power\_low\_res\_750\_709\_s.jpg","thumb":{"url":"../../images/2204/thumb\_NEC\_-\_energy\_storage\_for\_wind\_and\_solar\_power\_low\_res\_750\_709\_s.jpg"},"partner":{"url":"../../images/2204/partner\_NEC\_-\_energy\_storage\_for\_wind\_and\_solar\_power\_low\_res\_750\_709\_s.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-20.85,"longitude":144.2,"master\_project\_id":null,"name":"Kennedy Energy Park - Windlab / Eurus ","om\_contractor":"","organization":"","owner\_1":"Kennedy Energy Park","owner\_2":"","owner\_type":"3","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Generate enough electricity for more than 30,000 homes","primary\_reference":"http://www.energy-storage.news/news/major-solar-wind-and-storage-hybrid-project-approved-in-australia","primary\_reference1":"http://kennedyenergypark.com.au/home","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Queensland","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-16T22:41:54Z","updated\_at\_by\_admin":"2016-08-16T22:41:54Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-07-25","approval\_status":1,"city":"Lam Takhong Wind Turbine Generation Project","commissioning\_on":null,"companion":"Lam Takhong Wind Turbine Generation Project","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"cwitty@darrowir.com; investors@hydrogenics.com","contact\_info\_visible":false,"contact\_name":"Chris Witty; Bob Motz","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Phraram 2 Civil Engineering Co., Ltd.","contractor\_2":"","contractor\_3":"","cost\_CAPEX":4762250.0,"cost\_OPEX":null,"country":"Thailand","created\_at":"2016-08-08T15:46:35Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"Hydrogenics Corporation along with Phraram 2 Civil Engineering Co, has been awarded the “Lam Takhong Wind Hydrogen Hybrid Project” by the Electricity Generation Authority of Thailand (EGAT). This will be Southeast Asia’s first megawatt-scale project for energy storage; Hydrogenics’ portion is projected to be worth approximately €4.3 million.\r\n\r\nThe facility, located in the sub-station area of the Lam Takhong Wind Turbine Generation Project, Nakhon Ratchasima Province, Thailand, will consist of Hydrogenics’ ultra-compact 1 MW PEM HyLyzer electrolyzer, hydrogen storage and a HyPM fuel cell plant. PCE, based in Bangkok, will provide the services required to implement the technology supplied by Hydrogenics. The installation will use the HyLyzer to convert excess electricity from wind to hydrogen during off-peak hours, and this hydrogen will then be used by the HyPM fuel cell plant to generate 300 kW of electricity for EGAT’s Learning Center, an energy neutral building, as needed.\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2205,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":14.9798997,"longitude":102.0977693,"master\_project\_id":null,"name":"Lam Takhong Wind Hydrogren Hybrid Project","om\_contractor":"","organization":"","owner\_1":"Electricity Generation Authority of Thailand","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://globenewswire.com/news-release/2016/07/21/857827/0/en/Southeast-Asia-s-First-Renewable-Hydrogen-Based-Energy-Storage-and-Power-Plant-Awarded-to-Hydrogenics.html?utm\_source=Energy+Storage+Report&utm\_campaign=2b3f6fdc8f-ESR\_2\_10\_1210\_2\_2012&utm\_medium=email&utm\_term=0\_bd57f7e9aa-2b3f6fdc8f-105410805","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":300,"size\_kwh":3.33333333333333,"size\_kwh\_hours":3,"size\_kwh\_minutes":20.0,"state":"Nakhon Ratchasima Province","status":"Contracted","street\_address":"Sub-station area","systems\_integration":null,"technology\_classification":null,"technology\_type":"Hydrogen Storage","technology\_type\_l1":"Hydrogen Storage","technology\_type\_l2":"Hydrogen Storage","technology\_type\_l3":"Hydrogen Storage","updated\_at":"2016-08-11T22:25:00Z","updated\_at\_by\_admin":"2016-08-11T22:24:50Z","updated\_by":null,"updated\_by\_email":null,"utility":"Electricity Generation Authority of Thailand (EGAT)","utility\_type":"Federally Owned","vendor\_company":"Hydrogenics Corporation","zip":""}},{"project":{"announcement\_on":"2022-08-08","approval\_status":1,"city":"Non-Gong Substation","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"kokam","contact\_info\_visible":false,"contact\_name":"Bill","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Korea, South","created\_at":"2016-08-09T00:38:54Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Korea Electric Power Corporation (KEPCO) (KEP), has awarded Kokam a contract to develop a 36-megawatt (MW) system / 13-megawatt hour (MWh) Energy Storage System (ESS) for frequency regulation at the Non-Gong substation in South Korea. The project features a combination of two unique Kokam Lithium Ion battery technologies -- its Ultra High Power Nickel Manganese Cobalt (NMC) battery technology and its NANO battery technology. Work on the project began in June 2016 and is scheduled to be completed by December of 2016.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":null,"hidden":false,"id":2206,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2206/kokam\_energy\_storage.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2206/thumb\_kokam\_energy\_storage.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2206/partner\_kokam\_energy\_storage.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":null,"longitude":null,"master\_project\_id":null,"name":"Non-Gong Substation ESS - 36 MW ESS - KEPCO / Kokam","om\_contractor":"","organization":"","owner\_1":"KEPCO","owner\_2":"","owner\_type":"3","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.prnewswire.com/news-releases/kokam-to-build-36-megawatt-energy-storage-system-ess-for-kepco-increasing-its-total-worldwide-ess-project-portfolio-to-132-megawatts-300308259.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":36000,"size\_kwh":0.366666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":22.0,"state":"N/A","status":"Contracted","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium Nickel Manganese Cobalt Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium Nickel Manganese Cobalt Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-10T17:22:00Z","updated\_at\_by\_admin":"2016-08-10T17:22:00Z","updated\_by":null,"updated\_by\_email":null,"utility":"KEPCO","utility\_type":"","vendor\_company":"Kokam","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Gahanna","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"TFWEAVER@aep.com","contact\_info\_visible":false,"contact\_name":"Tom Weaver","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-08-10T00:46:42Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"American Electric Power installed a Battery Energy Storage System as a demonstration project at their development center in Gahanna, Ohio. The purpose of the project was to demonstrate the operation of NGK’s Sodium Sulphur Battery together with ABB’s Power Conditioning System in a combined Power Quality and Peak Shaving application. The system will typically charge the batteries during nighttime hours when energy is less costly and discharge during daytime peak demand periods. The PCS will continually monitor the grid voltages for disruptions, sags and swells. If an out-of-tolerance voltage event occurs, the PCS will\r\nquickly disconnect the critical plant load from the grid with a high-speed switch and feed the load with power from the batteries. When the grid voltages recovers to nominal values, the PCS will reconnect the load to the grid and proceed to recharge the batteries. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2209,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2209/gahanna.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2209/thumb\_gahanna.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2209/partner\_gahanna.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":40.0192307,"longitude":-82.8793446,"master\_project\_id":null,"name":"AEP Gahanna NaS Battery Energy Storage System","om\_contractor":"","organization":"","owner\_1":"American Electric Power (AEP)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.aep.com/newsroom/newsreleases/?id=872","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Ohio","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Sodium-sulfur Battery","technology\_type\_l1":"Sodium based Battery","technology\_type\_l2":"Sodium-sulfur Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T21:16:04Z","updated\_at\_by\_admin":"2016-09-07T21:36:15Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Dorrigo","commissioning\_on":"2022-04-13","companion":"A three phase 17 Amp grid connection","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"geofftosio@gmail.com","contact\_info\_visible":false,"contact\_name":"Geoff Tosio","contact\_phone":"+61 409 894 643","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"Enesol","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-08-10T05:17:55Z","created\_by\_id":442,"debt\_investor":"","decommissioning\_on":null,"desc":"The Cork Trust Medical Centre is located in Dorrigo in the high altitude coastal region of Northern New South Wales. Solar Depot Bellingen was involved since inception and won the tender, subsequently designing and installing an AC coupled grid connected microgrid / solar-hybrid system made up of three Selectronic SP1202 inverter chargers, 36 kW of Yingli polycrystalline solar panels (eventually to be expanded up to 90 kW) , and 6 x ABB 6 kW Inverters and an energy storage system.\r\n\r\nThe energy storage system is made up of 60 x 2 Volt OPzV Gel batteries rated to 1275 amp hours (C100 rated), which can store up to 72 kWh of available electricity. This will be used to store excess solar production for use at night instead of selling it back to the grid at a low rate, and can also be used for back-up during blackout periods.\r\n","developer":"Regional Architects","electronics\_provider":"Selectronic","energy\_management\_software\_provider":"Selectronic","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2210,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2210/Arial\_shot.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2210/thumb\_Arial\_shot.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2210/partner\_Arial\_shot.JPG"}},"integrator\_company":"Solar Depot Bellingen","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-30.3373727,"longitude":152.7092753,"master\_project\_id":null,"name":"The Cork Trust Medical Centre Dorrigo","om\_contractor":"","organization":"Solar Depot Bellingen","owner\_1":"The Cork Trust","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"162 kW hrs per day of solar production, for stage 1","primary\_reference":"https://onestepoffthegrid.com.au/australias-first-energy-autonomous-medical-centre-built-in-dorrigo/","primary\_reference1":"","projected\_lifetime":"15.0","rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Grid-Connected Residential (Reliability)","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"On-Site Power","service\_use\_case\_6":"Onsite Renewable Generation Shifting","service\_use\_case\_7":"Renewables Energy Time Shift","service\_use\_case\_8":"Resiliency","service\_use\_case\_9":"","siting":"","size\_kw":60,"size\_kwh":1.33333333333333,"size\_kwh\_hours":1,"size\_kwh\_minutes":20.0,"state":"NSW","status":"Operational","street\_address":"8 Tyringham Rd","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Lead-acid Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-11T20:45:34Z","updated\_at\_by\_admin":"2016-08-11T20:45:34Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Sacred Sun","zip":"2454"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Werlte","commissioning\_on":"2022-06-25","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"markus.ostermeier@man.eu; hermann.pengg@audi.de","contact\_info\_visible":false,"contact\_name":"Markus Ostermeier; Dr. Hermann Pengg (verification contact)","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"ETOGAS AG","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2016-08-12T07:01:49Z","created\_by\_id":444,"debt\_investor":"","decommissioning\_on":null,"desc":"Since 2013 a 6 MW plant produces methane from renewable electricity. The carbon dioxide source is a bio mass plant. Audi AG uses the produced methane (e-gas) to run cars with gas engines.","developer":"ETOGAS GmbH","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2212,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2212/audiegas.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2212/thumb\_audiegas.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2212/partner\_audiegas.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":52.8525209,"longitude":7.671886,"master\_project\_id":null,"name":"Audi e-gas Project","om\_contractor":"","organization":"MAN Diesel & Turbo SE; AUDI AG","owner\_1":"Audi AG","owner\_2":"","owner\_type":"2","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.powertogas.info/power-to-gas/pilotprojekte-im-ueberblick/audi-e-gas-projekt/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":6000,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Niedersachsen","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Hydrogen Storage","technology\_type\_l1":"Hydrogen Storage","technology\_type\_l2":"Hydrogen Storage","technology\_type\_l3":"Hydrogen Storage","updated\_at":"2016-08-16T18:41:13Z","updated\_at\_by\_admin":"2016-08-16T18:41:12Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"MAN Diesel & Turbo SE","zip":"49757"}},{"project":{"announcement\_on":"2022-07-19","approval\_status":1,"city":"Lakeland","commissioning\_on":"2022-08-01","companion":"10.4 MW Solar PV Project","construction\_on":"2022-09-01","contact\_city":"","contact\_country":"","contact\_email":"research@energystoragealliance.com.au","contact\_info\_visible":false,"contact\_name":"Mary Hendriks","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Conergy","contractor\_2":"","contractor\_3":"","cost\_CAPEX":42500000.0,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-08-12T16:24:52Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"The AU$42.5 million Lakeland Solar & Storage (LSS) project located near Lakeland in North Queensland, Australia will consist of a 13 MW solar array and a 1.4 MW / 5.3 MWh Conergy Hybrid Energy Storage Solution (CHESS). The project is connected to the fringe of grid in Australia and is designed to test the boundaries of operation of utility scale solar combined with battery storage in these conditions. \r\n\r\nThe Project which is grid connected and located in far north Queensland, will be operational in Q3 2017. \r\n\r\nNews Update: http://reneweconomy.com.au/world-leading-solar-battery-storage-project-lures-bhp-12584/\r\n\r\nARENA Press Release: http://arena.gov.au/media/world-first-combine-big-solar-storage/\r\n\r\nhttp://www.conergy.com.au/press-release/lakeland-solar-storage-project-update","developer":"Conergy","electronics\_provider":"Autarsys GmbH","energy\_management\_software\_provider":"Autarsys GmbH","funding\_amount\_1":17400000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National Grant","funding\_source\_2":"Private/Third Party RD&D","funding\_source\_3":"","funding\_source\_details\_1":"Australian Renewable Energy Agency (ARENA)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2213,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2213/northqld-solar-bg-phase\_2\_-\_Reduced.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2213/thumb\_northqld-solar-bg-phase\_2\_-\_Reduced.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2213/partner\_northqld-solar-bg-phase\_2\_-\_Reduced.jpg"}},"integrator\_company":"Conergy","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-15.9087784,"longitude":144.8524539,"master\_project\_id":null,"name":"Lakeland Solar & Storage Project - Conergy","om\_contractor":"","organization":"Australian Energy Storage Alliance (AESA)","owner\_1":"Conergy","owner\_2":"","owner\_type":"2","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.conergy.com.au","primary\_reference1":"http://www.conergy.com.au/press-release/conergy-starts-construction-australias-first-grid-connected-utility-scale-solar-battery-storage-project","projected\_lifetime":null,"rdd\_status":"","research\_desc":"","research\_institution":"BHP, ARENA, ERGON ENERGY, ORIGIN ENERGY","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1400,"size\_kwh":3.78333333333333,"size\_kwh\_hours":3,"size\_kwh\_minutes":47.0,"state":"Queensland","status":"Operational","street\_address":"Mulligan Highway","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-29T17:31:55Z","updated\_at\_by\_admin":"2017-08-02T19:49:15Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"Ergon Energy","utility\_type":"State/Municipal Owned","vendor\_company":"Autarsys GmbH","zip":"4871"}},{"project":{"announcement\_on":"2022-07-19","approval\_status":1,"city":"Roxby Downs","commissioning\_on":"2022-09-01","companion":"20 MWdc of solar PV","construction\_on":"2022-01-01","contact\_city":null,"contact\_country":null,"contact\_email":"research@energystoragealliance.com.au","contact\_info\_visible":false,"contact\_name":"Mary Hendriks","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"Downer","contractor\_2":"Worley Parsons / Advisian","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-08-18T17:18:51Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project will be connected to the National Electricity Market (NEM) – the wholesale electricity market in Australia – and features two stages of development:\r\n\r\nStage 1 will deliver 20 MWdc of solar PV plus a minimum of 2 MWhr lithium-based battery storage. This stage will enable analysis and performance assessment of the plant in harsh desert conditions. Commercial operations are scheduled to get under way before September 2017\r\n\r\nStage 2 will deliver 100 MW of solar PV with a 100 MWh of battery storage and is expected to operate commercially before the end of 2017.","developer":"Lyon Infrastructure Investments","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2214,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2214/kingfisher.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2214/thumb\_kingfisher.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2214/partner\_kingfisher.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"NEM","latitude":-30.5620637,"longitude":136.9008815,"master\_project\_id":"---\n- '2215'\n","name":"Kingfisher Project (Stage 1)","om\_contractor":"First Solar","organization":"Australian Energy Storage Alliance (AESA)","owner\_1":"Lyon Group","owner\_2":"","owner\_type":"2","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://dev.essentialdigital.com.au/solar-projects-announced-in-qld-sa-with-batteries-as-big-as-football-fields/","primary\_reference1":"http://reneweconomy.com.au/2016/worlds-biggest-solar-storage-projects-planned-australia-95528","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"South Australia","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-05T00:02:28Z","updated\_at\_by\_admin":"2016-09-08T19:37:34Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"AES Energy Storage","zip":""}},{"project":{"announcement\_on":"2022-07-19","approval\_status":1,"city":"Roxby Downs","commissioning\_on":null,"companion":"100 MW of Solar PV","construction\_on":"2022-01-01","contact\_city":null,"contact\_country":null,"contact\_email":"research@energystoragealliance.com.au","contact\_info\_visible":false,"contact\_name":"Mary Hendriks","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"Downer","contractor\_2":"Worley Parsons/ Advisian","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-08-18T17:26:45Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The Kingfisher Project will feature a solar PV plant and a battery storage facility that uses sophisticated system management processes and is connected to a grid with operational mining activities.\r\n\r\nThe project will be connected to the National Electricity Market (NEM) – the wholesale electricity market in Australia – and features two stages of development:\r\n\r\nStage 1 will deliver 20 MWdc of solar PV plus a minimum of 2 MWhr lithium-based battery storage. This stage will enable analysis and performance assessment of the plant in harsh desert conditions. Commercial operations are scheduled to get under way before September 2017\r\n\r\nStage 2 will deliver 100 MW of solar PV with a 100 MWh of battery storage and is expected to operate commercially before the end of 2017.\r\n\r\nThe combination of solar and storage means the facilities can provide high quality, reliable power to large energy users while also potentially avoiding the costs of grid upgrades.\r\n\r\nUpdate: http://reneweconomy.com.au/2016/lyon-confirms-plans-for-two-big-solar-storage-plants-in-australia-19683\r\n\r\n","developer":"Lyon Infrastructure Investments","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2215,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2215/kingfisher.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2215/thumb\_kingfisher.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2215/partner\_kingfisher.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"NEM","latitude":-30.5620637,"longitude":136.9008815,"master\_project\_id":null,"name":"Kingfisher Project (Stage 2)","om\_contractor":"First Solar","organization":"Australian Energy Storage Alliance (AESA)","owner\_1":"Lyon Group","owner\_2":"","owner\_type":"2","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://dev.essentialdigital.com.au/solar-projects-announced-in-qld-sa-with-batteries-as-big-as-football-fields/","primary\_reference1":"http://www.lyoninfrastructure.com.au/projects/kingfisher-solar-storage/","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"South Australia","status":"Announced","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-04T23:48:56Z","updated\_at\_by\_admin":"2016-09-08T19:35:39Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"","utility\_type":"","vendor\_company":"AES Energy Storage","zip":""}},{"project":{"announcement\_on":"2022-06-10","approval\_status":2,"city":"Timaru Washdyke","commissioning\_on":"2022-06-10","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"Sid.Masilamani@energymadeclean.com","contact\_info\_visible":false,"contact\_name":"Sid Masilamani","contact\_phone":"703-739-2424 x 111","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"New Zealand","created\_at":"2016-08-18T22:51:28Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Infratec designed, procured and installed a 36 kW, 142 kWh lithium ion battery energy system at Alpine Energy’s depot in Timaru, South Canterbury. The energy storage system has an equipment rating of 87 kVA continuous output and a peak of 174 kW for 2 seconds.\r\n\r\nThe purpose of the project was to trial demand response, load shifting and alternative tariff structures from the perspective of a distribution lines company. \r\n\r\nService Use Cases:\r\n- Peak Lopping\r\n- Network Provider Demand Response.\r\n\r\nFuture Functions Available:\r\n1. Power Quality Options\r\n2. Arbitrage\r\n3. RE Smoothing\r\n4. Loss of Mains Detect and Island (upgrade to hardware required).","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2216,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2216/EMC-batteryinfratec.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2216/thumb\_EMC-batteryinfratec.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2216/partner\_EMC-batteryinfratec.jpg"}},"integrator\_company":"Energy Made Clean (EMC)","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-44.3524425,"longitude":171.2384037,"master\_project\_id":null,"name":"Alpine Energy BESS - Infratec / EMC","om\_contractor":"","organization":"Energy Made Clean (EMC)","owner\_1":"Alpine Energy","owner\_2":"Infratec","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.businessnews.com.au/article/EMC-delivers-battery-tech-to-NZ-partner","primary\_reference1":"http://infratec.nz/projects/110-alpine-energy-battery-storage-trial-new-zealand","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":36,"size\_kwh":3.93333333333333,"size\_kwh\_hours":3,"size\_kwh\_minutes":56.0,"state":"South Canterbury","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-22T17:53:24Z","updated\_at\_by\_admin":"2016-08-22T17:53:24Z","updated\_by":null,"updated\_by\_email":null,"utility":"Alpine Energy","utility\_type":"State/Municipal Owned","vendor\_company":"Energy Made Clean (EMC)","zip":""}},{"project":{"announcement\_on":"2022-08-18","approval\_status":2,"city":"Escondido","commissioning\_on":"2022-01-31","companion":"Escondido Substation","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"brian.perusse@aes.com; JGerber@semprautilities.com","contact\_info\_visible":false,"contact\_name":"Brian Perusse; Josh Gerber","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-08-19T00:05:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"AES Energy Storage, has entered into two contracts with San Diego Gas and Electric. AES will install and commission two energy storage arrays totaling 37.5 MW using its Advancion energy storage solution at sites in San Diego County, California. The SDG&E-owned energy storage arrays will help to improve regional reliability and integrate greater amounts of renewable energy when operational by the end of January 2017.\r\n\r\nThe SDG&E Advancion arrays will be able to provide 37.5 MW of power for four continuous hours and serve as a 75 MW of flexible resource to the grid. Both systems are distribution interconnected @ 12 kV and the arrays will be installed at two SDG&E substation facilities: 30 MW in Escondido and 7.5 MW in El Cajon. Once completed, the Escondido array will be the largest battery-based energy storage project in operation in the United States. Both arrays will incorporate components from best-in-class Advancion certified suppliers, including batteries by Samsung SDI and power conversion systems by Parker Hannifin.","developer":"San Diego Gas & Electric (SDG&E)","electronics\_provider":"Parker Hannifin","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2217,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2217/Escondido\_08\_aerial.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2217/thumb\_Escondido\_08\_aerial.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2217/partner\_Escondido\_08\_aerial.jpg"}},"integrator\_company":"AES Energy Storage","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.1192068,"longitude":-117.086421,"master\_project\_id":null,"name":"SDG&E Escondido Substation - AES","om\_contractor":"","organization":"AES Energy Storage; SDG&E","owner\_1":"San Diego Gas & Electric (SDG&E)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.aes.com/investors/press-releases/press-release-details/2016/AES-to-Deploy-375-MW-of-Advancion-Energy-Storage-Arrays-for-SDGE/default.aspx","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":30000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-23T22:56:11Z","updated\_at\_by\_admin":"2016-09-23T22:56:11Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":"2022-08-16","approval\_status":2,"city":"El Cajon","commissioning\_on":"2022-01-31","companion":"El Cajon Substation","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"JGerber@semprautilities.com","contact\_info\_visible":false,"contact\_name":"Josh Gerber","contact\_phone":"858-541-5799","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-08-19T00:27:03Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"AES Energy Storage, has entered into two contracts with San Diego Gas and Electric. AES will install and commission two energy storage arrays totaling 37.5 MW using its Advancion energy storage solution at sites in San Diego County, California. The SDG&E-owned energy storage arrays will help to improve regional reliability and integrate greater amounts of renewable energy when operational by the end of January 2017. \r\n\r\nThe SDG&E Advancion arrays will be able to provide 37.5 MW of power for four continuous hours and serve as a 75 MW of flexible resource to the grid. Both systems are distribution interconnected @ 12 kV and the arrays will be installed at two SDG&E substation facilities: 30 MW in Escondido and 7.5 MW in El Cajon. Once completed, the Escondido array will be the largest battery-based energy storage project in operation in the United States. Both arrays will incorporate components from best-in-class Advancion certified suppliers, including batteries by Samsung SDI and power conversion systems by Parker Hannifin.","developer":"San Diego Gas & Electric (SDG&E)","electronics\_provider":"Parker Hannifin","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2218,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2218/ElCajon\_08\_aerial\_\_2\_.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2218/thumb\_ElCajon\_08\_aerial\_\_2\_.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2218/partner\_ElCajon\_08\_aerial\_\_2\_.jpg"}},"integrator\_company":"AES Energy Storage","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.7947731,"longitude":-116.9625269,"master\_project\_id":null,"name":"SDG&E El Cajon Substation - AES","om\_contractor":"","organization":"SDG&E","owner\_1":"San Diego Gas & Electric (SDG&E)","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.aes.com/investors/press-releases/press-release-details/2016/AES-to-Deploy-375-MW-of-Advancion-Energy-Storage-Arrays-for-SDGE/default.aspx","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Primary Distribution","size\_kw":7500,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-23T19:17:34Z","updated\_at\_by\_admin":"2017-10-23T19:17:34Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":"2022-06-28","approval\_status":0,"city":"Kailua","commissioning\_on":null,"companion":"","construction\_on":"2022-07-28","contact\_city":null,"contact\_country":null,"contact\_email":"aknath@strategen.com","contact\_info\_visible":false,"contact\_name":"Anirudh","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-08-19T18:18:32Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"STEM is rolling out its systems for Whole Foods Market in Kailua. Stem’s data analytics software incorporates weather-pattern information, past-usage data and rate information to predict when electricity use will peak. The Storage system is designed to respond to the spike in electricity use, drawing on stored power to reduce costs for customers.","developer":"Stem","electronics\_provider":"Stem","energy\_management\_software\_provider":"Stem","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2219,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2219/whole-foods-marketkailua-750xx400-226-0-195.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2219/thumb\_whole-foods-marketkailua-750xx400-226-0-195.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2219/partner\_whole-foods-marketkailua-750xx400-226-0-195.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":21.4022222,"longitude":-157.7394444,"master\_project\_id":null,"name":"Whole Foods Kailua- Hawaii ","om\_contractor":"","organization":"","owner\_1":"Whole Foods","owner\_2":"","owner\_type":"3","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.bizjournals.com/pacific/news/2016/07/28/whole-foods-market-in-kailua-to-get-energystorage.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Hawaii","status":"Under Construction","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-08-22T21:04:54Z","updated\_at\_by\_admin":"2016-08-22T21:04:54Z","updated\_by":null,"updated\_by\_email":null,"utility":"Hawaiian Electric Company","utility\_type":"","vendor\_company":"Panasonic, Samsung","zip":"96734"}},{"project":{"announcement\_on":"2022-08-22","approval\_status":2,"city":"Duluth","commissioning\_on":"2022-08-26","companion":"Rooftop Solar PV","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"resilient-power@cleanegroup.org; operations@hartleynature.org","contact\_info\_visible":false,"contact\_name":"Resilient Power; Brett (Hartley Operations Director)","contact\_phone":"; 218-724-6735","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"Clean Energy Group","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-08-22T18:39:31Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Clean Power Group's technical assistance fund helped develop a resilient solar + storage system that will turn the Hartley Nature Center in Duluth, Minnesota into a community emergency center during power outages, providing residents with a safe place to shelter and keep connected during emergencies.\r\n\r\nThe energy storage system is a Sunverge 6 kW / 14.25 kWh with eGauge monitoring.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"eGauge","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2220,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2220/hartley.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2220/thumb\_hartley.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2220/partner\_hartley.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":46.8385574,"longitude":-92.0829727,"master\_project\_id":null,"name":"Hartley Nature Center","om\_contractor":"","organization":"","owner\_1":"Hartley Nature Center","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.hartleynature.org/building/about.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":6,"size\_kwh":2.375,"size\_kwh\_hours":2,"size\_kwh\_minutes":22.5,"state":"Minnesota","status":"Operational","street\_address":"3001 Woodland Ave","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-02T18:14:21Z","updated\_at\_by\_admin":"2016-09-02T18:14:21Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Sunverge","zip":"55803"}},{"project":{"announcement\_on":"2022-08-18","approval\_status":1,"city":"Seattle","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"Tara.Lee@gov.wa.gov","contact\_info\_visible":false,"contact\_name":"Tara Lee","contact\_phone":"360-902-4136","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-08-22T20:03:29Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Seattle City Light will use a grant to help develop a microgrid, which will include a utility-scale battery system, solar panels and emergency generators located at a designated emergency shelter, such as a community center. During normal operations, the solar panels will charge the batteries and provide some of the power to operate the building. When the solar panels are not generating, the batteries can back up the delivery of electricity from Seattle City Light’s distribution grid or, during periods of high demand, could be used to reduce the amount of energy the utility has to purchase to meet customer needs, holding down costs for all its customer-owners. After a storm, earthquake or other emergency, the solar panels, emergency generators and battery system can power a portion of the building even if damage to the distribution grid causes outages in the surrounding area.\r\n\r\n“Microgrids show promise for providing backup power during outages, increasing our community’s resiliency after a disaster and making it easier to integrate renewable energy resources, such as solar and wind,” comments Larry Weis, Seattle City Light’s general manager and CEO.\r\n\r\nThe specific location for the micorgrid has yet to be determined, but Seattle City Light will create a microgrid at a designated emergency shelter, powered by solar energy. During an emergency, this stand-alone power grid will keep fire stations, community centers and communication networks operating. \r\n\r\nhttp://www.seattle.gov/documents/departments/parksandrecreation/briefingpapers/solar%20resiliency%20microgrid%20presentation7.13.pdf","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"State/Provincial/Regional","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Clean Energy Fund","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2221,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2221/seattlecitylight.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2221/thumb\_seattlecitylight.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2221/partner\_seattlecitylight.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":47.6062095,"longitude":-122.3320708,"master\_project\_id":null,"name":"Seattle City Light Microgrid","om\_contractor":"","organization":"Governor Inslee's Communication Office","owner\_1":"Seattle City Light","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://solarindustrymag.com/wash-clean-energy-grants-will-help-utilities-test-new-tech","primary\_reference1":"http://www.governor.wa.gov/news-media/inslee-announces-clean-energy-fund-grid-modernization-grants","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Washington","status":"Announced","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-28T00:41:44Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Public Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Boston","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"jwilliams@calmac.com","contact\_info\_visible":false,"contact\_name":"Jasmine Williams","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"Clark Construction Group, Inc","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-08-22T21:02:12Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This energy storage system consists of 65 tanks, each filled with 1,500 gallons of water, in the Moakley Courthouse sub-basement which turns into a farm of frozen batteries that can be charged when energy is cheap and harvested when cooling is needed. Large pipes filled with glycol antifreeze connect the tanks to a chiller machine — basically a refrigerator — then smaller tubes, filled with the chilled antifreeze, circulate inside the tanks and those tubes are surrounded by water, and that water freezes solid.\r\n\r\nIn most parts of the country — energy is half price at night, so with this type of system you create your air conditioning at night, store it in the form of ice and then use it the next day to offset chiller operation using electricity.\r\n\r\n","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2222,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2222/MoakleyCourthouse.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2222/thumb\_MoakleyCourthouse.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2222/partner\_MoakleyCourthouse.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":42.3541739,"longitude":-71.0471618,"master\_project\_id":null,"name":"Moakley Courthouse - Calmac","om\_contractor":"","organization":"Calmac","owner\_1":"John Joseph Moakley United States Courthouse","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.wbur.org/bostonomix/2016/08/19/moakely-energy-storage","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Massachusetts","status":"Operational","street\_address":"1 Courthouse Way","systems\_integration":null,"technology\_classification":null,"technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2016-08-22T21:02:36Z","updated\_at\_by\_admin":"2016-08-22T21:02:33Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"CALMAC Corp.","zip":"02210"}},{"project":{"announcement\_on":"2022-08-15","approval\_status":2,"city":"Irvine","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"matthew@mercomcapital.com","contact\_info\_visible":false,"contact\_name":"Matt Barbour","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-08-22T23:09:13Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Powin Energy, a designer, developer, and manufacturer of battery energy storage systems, will develop, install, and manage the project through Grand Johanna LLC. The project itself is a 2 MW / 8 MWh lithium ion battery system that will consist of modular battery packs controlled by Powin Energy’s patented battery management system. Battery arrays will connect to power conversion systems, transformers, and energy management controls which will control charge and discharge functions of the project. All of Powin Energy’s equipment will be housed in an existing 35,000 square foot warehouse located in Irvine, CA. Powin Energy has secured 100% site control of the location. \r\n\r\nIn addition to the entire battery system energy storage project, all the government-required safety mechanisms (e.g., fire suppression systems) will also be installed, to code, at the project site. The project will interconnect at SCE’s Virgo 12 kV circuit located on Millikan Avenue in Irvine, CA via a new underground gen-tie likely no longer than 150 feet. This circuit is directly in line with SCE’s 220/66 kV Santiago substation which is within (i) the Western LA Basin Local RA Capacity region, (ii) the LA Local Capacity Region and (iii) SCE’s Preferred Resources Pilot (PRP) region. \r\n\r\nhttp://www.marketwired.com/press-release/powin-energy-selected-for-2mw-8mwh-energy-storage-project-in-irvine-ca-2157381.htm","developer":"Powin Energy","electronics\_provider":"Eaton","energy\_management\_software\_provider":"Powin Energy","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2223,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2223/grandjohanna.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2223/thumb\_grandjohanna.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2223/partner\_grandjohanna.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.691031,"longitude":-117.833193,"master\_project\_id":null,"name":"Grand Johanna Aliso Canyon Energy Storage - SCE / Powin","om\_contractor":"","organization":"Mercomm Communications (Powin)","owner\_1":"Grand Johanna LLC","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.greentechmedia.com/articles/read/california-utilities-are-fast-tracking-battery-projects-to-manage-aliso-can","primary\_reference1":"https://www.sce.com/NR/sc3/tm2/pdf/3456-E\_.pdf","projected\_lifetime":"10.0","rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"16902 Millikan Avenue","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium Iron Phosphate Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-19T22:55:39Z","updated\_at\_by\_admin":"2016-09-19T22:55:39Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"","zip":"92606"}},{"project":{"announcement\_on":"2022-08-15","approval\_status":1,"city":"Pomona","commissioning\_on":"2021-12-31","companion":"San Gabriel Energy Facility","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"loic.gaillac@sce.com","contact\_info\_visible":false,"contact\_name":"Loic Gaillac","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-08-22T23:55:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The project will be constructed on a portion of the existing San Gabriel Energy Facility site located in Pomona, California. The system is designed to provide four hours of discharge at the stated capacity throughout the 10-year term of the contract. The project is designed to offer the full contract capacity throughout the term with no degradation, based on an initial oversizing of the facility and a battery replenishment strategy.\r\n\r\nThe project is expected to be interconnected at an existing 66/12 kV SCE Substation. 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But with the new proposal, the two are planning to speed up that deployment, with the proposed contract serving as a bridge agreement for the intervening three years. \r\n\r\nThe system is designed to provide four hours of discharge at the stated capacity, thus providing resource adequacy (RA) for the 5 MW of contract capacity throughout the term of the Santa Paula 1 Contract. The Santa Paula 1 project shares the same location, interconnection substation and developer as the project described in the 2014 Energy Storage (ES) request for offer RFO Agreement. \r\n\r\nThe project is located at 132 N. 13th St., Santa Paula, CA 93060. The Facility will be interconnected to SCE’s Petit circuit out of the Wakefield substation and has a service voltage of 16 kilovolts (kV). The project developer is Western Grid. As noted, 5 MW of capacity is contracted for under the Santa Paula 1 Contract, while 15 MW is contracted for under the 2014 ES RFO Agreement. 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SDI","zip":"93060"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"N/A","commissioning\_on":"2022-07-11","companion":"37 kW solar array","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"tnngo@sandia.gov","contact\_info\_visible":false,"contact\_name":"Thu Ngo","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Kenya","created\_at":"2016-08-26T21:38:18Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"This project is an off-grid microgrid installed at the Loisaba Conservancy by Aquion Energy and SolarAfrica.\r\nThere are two independent systems, which were funded, designed, installed, and integrated by SolarAfrica, each with 106kWh of batteries supplied by Aquion Energy and a 37 kW solar array, at the site.","developer":"SolarAfrica","electronics\_provider":"SMA","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"SolarAfrica","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2226,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"SolarAfrica","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":0.3969873,"longitude":37.158776,"master\_project\_id":null,"name":"Loisaba Conservancy ","om\_contractor":"","organization":"Sandia National 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","commissioning\_on":"2022-03-09","companion":"","construction\_on":"2021-12-16","contact\_city":null,"contact\_country":null,"contact\_email":"ben@gemenergy.com.au","contact\_info\_visible":false,"contact\_name":"Benjamin Kolle","contact\_phone":"0481365236","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"Gem Energy Australia","contractor\_2":"","contractor\_3":"","cost\_CAPEX":654416.88,"cost\_OPEX":0.13,"country":"Australia","created\_at":"2016-09-01T04:25:23Z","created\_by\_id":446,"debt\_investor":"NAB","decommissioning\_on":null,"desc":"A school in Queensland Australia is beginning to reap ﬁnancial and sustainability beneﬁ ts through its new hybrid PV and storage system. The system, engineered and installed by GEM Energy Australia, consists of 732 state of the art Q.PRO modules that feed power into the school as well as a containerised bank of batteries. \r\n\r\nThe system was carefully designed by GEM Energy to optimise generation for onsite loads and electricity tariffs plus charge the batteries during a relatively short time period. The site featured many roof orientations which further presented challenges during the design and installation of the PV array. The inverters required custom programming in order to integrate with other system components. Q CELLS PV modules were chosen for their high energy yields and high reliability in the tropical conditions experienced in Queensland Australia.\r\n\r\nThe system is expected to reduce grid electricity consumption by approximately 80% - resulting in savings of up to $100,000 (AUD) per year.","developer":"Gem Energy Australia","electronics\_provider":"Selectronic","energy\_management\_software\_provider":"Gem Energy Australia","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2227,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2227/DJI\_0003\_result.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2227/thumb\_DJI\_0003\_result.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2227/partner\_DJI\_0003\_result.JPG"}},"integrator\_company":"Gem Energy Australia","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-24.868465,"longitude":152.4059791,"master\_project\_id":null,"name":"Bundaberg Christian College","om\_contractor":"Gem Energy Australia","organization":"Gem Energy Australia","owner\_1":"Bundaberg Christian College","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"http://gemenergy.com.au.solar-log.com/BCC\_Graphic.html?c","primary\_reference":"http://www.gemenergy.com.au","primary\_reference1":"https://onestepoffthegrid.com.au/queensland-school-installs-solar-and-battery-storage-an-australian-first/","projected\_lifetime":"18.0","rdd\_status":null,"research\_desc":null,"research\_institution":"Gem Energy Australia","research\_institution\_link":null,"service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":25,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"QLD","status":"Operational","street\_address":"234 Ashfield Rd","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lead-acid Battery","technology\_type\_l1":"Lead-acid Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-06T23:52:40Z","updated\_at\_by\_admin":"2016-09-06T23:52:40Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"HID Australia","zip":"4670"}},{"project":{"announcement\_on":"2022-11-10","approval\_status":2,"city":"JERICHO ","commissioning\_on":"2022-01-30","companion":"","construction\_on":"2022-11-02","contact\_city":null,"contact\_country":null,"contact\_email":"ben@gemenergy.com.au","contact\_info\_visible":true,"contact\_name":"Benjamin Kolle","contact\_phone":"0481365236","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"Gem Energy Australia","contractor\_2":"","contractor\_3":"","cost\_CAPEX":125000.0,"cost\_OPEX":0.034,"country":"Australia","created\_at":"2016-09-01T04:41:59Z","created\_by\_id":446,"debt\_investor":"","decommissioning\_on":null,"desc":"This project was completed for a remote cattle station in Regional Queensland to replace their SWER (single wire earth return) power network to combat increasing power prices and to vastly improve the reliability of their power source. This system supplies over 100 kWh (solar and storage combined) of electricity per day to run heavy machinery, power tools, air-conditioners, water filtration, bore pumps and general appliances.","developer":"Gem Energy Australia","electronics\_provider":"Kaco new Energy","energy\_management\_software\_provider":"Selectronic","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2228,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2228/P1030612.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2228/thumb\_P1030612.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2228/partner\_P1030612.JPG"}},"integrator\_company":"Gem Energy Australia","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-23.5881005,"longitude":146.137592,"master\_project\_id":null,"name":"Off-Grid Installation in Regional Queensland, Australia","om\_contractor":"Gem Energy Australia","organization":"Gem Energy Australia","owner\_1":"100%","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.gemenergy.com.au/off-grid-hybrid/","primary\_reference1":"","projected\_lifetime":"18.0","rdd\_status":null,"research\_desc":null,"research\_institution":"Gem Energy Australia","research\_institution\_link":null,"service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management with Renewables","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"Onsite Renewable Generation Shifting","service\_use\_case\_6":"Renewables Energy Time Shift","service\_use\_case\_7":"Voltage Support","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":5,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"QLD","status":"Operational","street\_address":"LOT 4 Jericho-Marston RD ","systems\_integration":null,"technology\_classification":null,"technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-13T16:54:24Z","updated\_at\_by\_admin":"2016-09-13T16:54:24Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"Exide/Sonnenschein","zip":"4728"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Emerald","commissioning\_on":"2022-10-26","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"ben@gemenergy.com.au","contact\_info\_visible":true,"contact\_name":"Benjamin Kolle","contact\_phone":"0481365236","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"Gem Energy Australia","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-09-01T04:53:58Z","created\_by\_id":446,"debt\_investor":"","decommissioning\_on":null,"desc":"Containerized off-grid system which was specially developed for the easy deployment in remote locations. The system features AC and DC coupled charging for redundancy and efficiency. \r\n\r\nThe system features environmentally friendly Aquion salt water batteries, Australian made Selectronic battery controller and Imark DC charger. ","developer":"Gem Energy Australia","electronics\_provider":"ABB","energy\_management\_software\_provider":"Selectronic","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2229,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2229/P1050059\_web.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2229/thumb\_P1050059\_web.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2229/partner\_P1050059\_web.JPG"}},"integrator\_company":"Gem Energy Australia","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-23.527291,"longitude":148.164573,"master\_project\_id":null,"name":"Remote Off-Grid Container - Regional Queensland ","om\_contractor":"Gem Energy Australia","organization":"Gem Energy Australia","owner\_1":"Origin Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.gemenergy.com.au/off-grid-hybrid/","primary\_reference1":"","projected\_lifetime":"12.0","rdd\_status":null,"research\_desc":null,"research\_institution":"Gem Energy Australia","research\_institution\_link":null,"service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"QLD","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-13T16:59:24Z","updated\_at\_by\_admin":"2016-09-13T16:59:24Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Aquion Energy","zip":"4720"}},{"project":{"announcement\_on":"2022-08-06","approval\_status":1,"city":"N/A","commissioning\_on":null,"companion":"1,000 Solar PV","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"tnngo@sandia.gov","contact\_info\_visible":false,"contact\_name":"Thu Ngo","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":20000000.0,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-09-07T15:03:05Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"AGL Energy will be installing a 5MW/7MWh battery energy storage \"virtual power plant\" in South Australia to support renewable energy and stabilize power price. The system will be linked to 1,000 solar PV\r\n\r\nARENA Announcement: http://arena.gov.au/media/battery-storage-set-strengthen-south-australian-grid/","developer":"AGL Energy Limited","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":5000000.0,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Federal/National","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Australian Renewable Energy Agency (ARENA)","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2230,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2230/sunverge\_solar\_storage\_02.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2230/thumb\_sunverge\_solar\_storage\_02.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2230/partner\_sunverge\_solar\_storage\_02.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-25.274398,"longitude":133.775136,"master\_project\_id":null,"name":"AGL 5MW/7MWh \"Virtual Power Plant\"-Australia","om\_contractor":"","organization":"","owner\_1":"Australian Renewable Energy Agency (ARENA)","owner\_2":"","owner\_type":"2","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.solarserver.com/solar-magazine/solar-news/current/2016/kw31/energy-storage-in-australia-virtual-7-mwh-battery-power-plant-installed-alongside-solar-pv-to-ease-electricity-price-spikes.html","primary\_reference1":"http://solar.energy-business-review.com/news/australias-agl-to-develop-worlds-largest-battery-storage-virtual-power-plant-080816-4973046","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Bill Management with Renewables","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":5000,"size\_kwh":1.4,"size\_kwh\_hours":1,"size\_kwh\_minutes":24.0,"state":"N/A","status":"Announced","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-08T19:53:04Z","updated\_at\_by\_admin":"2016-09-08T19:53:04Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Sunverge Energy","zip":""}},{"project":{"announcement\_on":"2022-07-14","approval\_status":0,"city":"N/A","commissioning\_on":null,"companion":"6MW Solar Power Plant","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"tnngo@sandia.gov","contact\_info\_visible":false,"contact\_name":"Thu Ngo","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Japan","created\_at":"2016-09-07T15:26:00Z","created\_by\_id":387,"debt\_investor":"","decommissioning\_on":null,"desc":"Nidec ASI and Advantec Co. Ltd. will be supplying power and energy management sytems for a PV plant located on Hokkaido Island, Japan. Advantec will supply 6MW solar power plant. Nidec ASI will provide four power and energy storage systems with a total capacity of 6 MW and 6MWh","developer":"Nidec ASI","electronics\_provider":"Nidec ASI","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2231,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":43.2203266,"longitude":142.8634737,"master\_project\_id":null,"name":"Nidec ASI 6MW/6MWh- Hokkaido Island, Japan","om\_contractor":"","organization":"","owner\_1":"Nidec ASI","owner\_2":"","owner\_type":"2","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.marketwatch.com/story/european-energy-storage-technology-in-japan-after-breaking-ground-in-germany-on-one-of-the-largest-bess-projects-worldwide-nidec-asi-wins-another-key-energy-storage-deal-in-the-japanese-market-for-a-photovoltaic-power-plant-2016-07-14","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":null,"service\_use\_case\_3":null,"service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":6000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Hokkaido Island","status":"Announced","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-09T20:00:30Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Nidec ASI","zip":""}},{"project":{"announcement\_on":"2022-09-08","approval\_status":1,"city":"Lakeland","commissioning\_on":"2021-12-31","companion":"80 MW solar PV","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"mary@energystoragealliance.com.au","contact\_info\_visible":false,"contact\_name":"Mary Hendriks","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2016-09-08T19:26:50Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Lyon has announced its second major project will be located in Lakeland, Queensland, where it plans to build a minimum 80 MW solar array and 20 MW / MWh battery storage facility – ironically near another smaller project which it sold to Conergy recently (See project profile \"Lakeland Solar and Storage - Conergy\").\r\n\r\n“Battery storage really is the missing piece of the puzzle in Australia’s clean energy future, and for that matter anywhere seeking to incorporate large amounts of renewables into the energy mix. These projects will complete the picture,” said Lyon Partner David Green.","developer":"Lyon Group","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2232,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2232/lyon-solar-storage.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2232/thumb\_lyon-solar-storage.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2232/partner\_lyon-solar-storage.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-15.8415527,"longitude":144.8494034,"master\_project\_id":null,"name":"Lakeland Solar and Storage - Lyon Group","om\_contractor":"","organization":"Australian Energy Storage Alliance (AESA)","owner\_1":"Lyon Group","owner\_2":"","owner\_type":"2","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://reneweconomy.com.au/2016/lyon-confirms-plans-for-two-big-solar-storage-plants-in-australia-19683","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":20000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Queensland","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-28T17:32:05Z","updated\_at\_by\_admin":"2016-09-28T17:32:04Z","updated\_by":null,"updated\_by\_email":null,"utility":"Ergon Energy","utility\_type":"State/Municipal Owned","vendor\_company":"","zip":"4871"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"San Diego","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"gabe.schwartz@stem.com","contact\_info\_visible":false,"contact\_name":"Gabe Schwartz","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-09-15T23:06:36Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Stem installed a 36 kW intelligent energy storage system at San Diego Repertory Theatre, one of the city’s most popular performance venues. Stem's storage-as-a-service solution automatically shaves peak loads during performances to reduce energy bills and enables the theatre to tap a new value stream by participating in California’s Demand Response Auction Mechanism (DRAM) program. System includes Stem’s PowerStore hardware system and PowerScope data visualization software platform. ","developer":"Stem","electronics\_provider":"","energy\_management\_software\_provider":"Stem","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2233,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2233/sandiegorep.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2233/thumb\_sandiegorep.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2233/partner\_sandiegorep.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":32.7145351,"longitude":-117.1618911,"master\_project\_id":null,"name":"San Diego Repertory - Stem","om\_contractor":"","organization":"Stem","owner\_1":"Stem","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.stem.com/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":36,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"79 Horton Plaza","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-16T19:16:33Z","updated\_at\_by\_admin":"2016-09-16T19:16:32Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor Owned","vendor\_company":"Stem","zip":"92101"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"New Orleans","commissioning\_on":"2022-09-14","companion":"1 MW solar plant","construction\_on":"2022-02-05","contact\_city":null,"contact\_country":null,"contact\_email":"info@entergy.com","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"Blattner Energy","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-09-17T00:53:25Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The 1-megawatt pilot project, at Entergy’s former A.B. Paterson facility near Chef Menteur Highway, was unveiled September 14th, 2016. Its more than 4,200 solar panels will generate enough electricity to power 160 average homes.\r\n\r\nThis system is hailed as the city's first large-scale effort to produce solar power. What makes this project unique is that it involves solar panels that are supported by a 500-kilowatt advanced lithium battery to help store energy.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2234,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2234/entergy\_500kW.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2234/thumb\_entergy\_500kW.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2234/partner\_entergy\_500kW.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":30.0733718,"longitude":-89.8628618,"master\_project\_id":null,"name":"Entergy Chef Menteur Highway 500 kW Energy Storage","om\_contractor":"","organization":"Entergy","owner\_1":"Entergy","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.theadvocate.com/new\_orleans/news/business/article\_0a61a712-7ac8-11e6-992a-8fd99527ce57.html","primary\_reference1":"http://www.theadvocate.com/new\_orleans/news/business/article\_a25282c1-2b00-517e-a939-31211c23c08b.html","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Onsite Renewable Generation Shifting","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Louisiana","status":"Operational","street\_address":"Chef Menteur Highway","systems\_integration":null,"technology\_classification":null,"technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-25T04:43:55Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-09-15","approval\_status":0,"city":"Orange County","commissioning\_on":"2022-06-01","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"ttemchin@convergentep.com","contact\_info\_visible":false,"contact\_name":"Tremor Temchin","contact\_phone":"310 562 2423","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-09-17T00:57:49Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Convergent Energy + Power is contracted to deliver a 35 MW, 140 MWh energy storage system to provide targeted electric capacity and other benefits to the California grid.\r\n\r\nThe project was approved by Southern California Edison as part of SCE's competitive Preferred Resources Pilot solicitation, a program designed to meet local demand through clean energy resources. SCE recognizes the ability of energy storage to address multiple grid constraints and challenges in cleaner, more responsive and cost-effective ways.\r\n\r\nConvergent successfully proposed to provide four hours of continuous discharge capability for peak shaving and grid balancing services in southern Orange County, an area with significant load growth that was also impacted by the recent retirement of the San Onofre nuclear plant. Beyond their reliability benefits, these new energy storage projects will also bring economic value to California's wholesale electricity marketplace.","developer":"Convergent","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2235,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.7174708,"longitude":-117.8311428,"master\_project\_id":null,"name":"Convergent 35 MW / 140 MWh - SCE","om\_contractor":"","organization":"Covergent Energy + Power","owner\_1":"Southern California Edison","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.elp.com/articles/2016/09/convergent-energy-power-wins-35-mw-energy-storage-contract.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":35000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-21T17:39:12Z","updated\_at\_by\_admin":"2016-09-21T17:39:12Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-04-11","approval\_status":1,"city":"Toronto","commissioning\_on":"2022-03-31","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"david.anders@temporalpower.com","contact\_info\_visible":false,"contact\_name":"David Anders","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2016-09-17T01:07:06Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This 5 MW / 0.5 MWh flywheel project will provide Ontario’s Independent Electricity System Operator with regulation services via a pay-for-performance service contract. Located within the greater Toronto metro area, this project will additionally help support the electricity grid in one of the fastest-growing urban regions in North America.","developer":"Convergent","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2236,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2236/Temporal1-3.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2236/thumb\_Temporal1-3.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2236/partner\_Temporal1-3.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":43.653226,"longitude":-79.3831843,"master\_project\_id":null,"name":"North York Energy Storage - Convergent + Temporal 5 MW / IESO","om\_contractor":"","organization":"","owner\_1":"IESO","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.convergentep.com/convergent-and-temporal-power-announce-flywheel-storage-project-for-ontario-grid-operator/","primary\_reference1":"http://www.elp.com/articles/2016/09/convergent-energy-power-wins-35-mw-energy-storage-contract.html","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Voltage Support","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":5000,"size\_kwh":0.1,"size\_kwh\_hours":0,"size\_kwh\_minutes":6.0,"state":"Ontario","status":"Contracted","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Flywheel","technology\_type\_l1":"Flywheel","technology\_type\_l2":"Flywheel","technology\_type\_l3":"Electro-mechanical","updated\_at":"2016-09-17T01:17:26Z","updated\_at\_by\_admin":"2016-09-17T01:17:26Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Temporal Power","zip":""}},{"project":{"announcement\_on":"2022-05-27","approval\_status":1,"city":"Sault Ste. Marie","commissioning\_on":"2022-03-21","companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"joe.heinzmann@ge.com","contact\_info\_visible":false,"contact\_name":"Convergent","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Canada","created\_at":"2016-09-17T01:15:48Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Convergent Energy + Power will install a 7 megawatt (MW)-7 megawatt hour battery energy storage system for the Ontario Independent Electricity System Operator (IESO). The complete solution features GE’s Mark\* VI plant control system with SCADA, Brilliance\* MW Inverters, packaged lithium ion battery modules, medium-voltage transformers and switchgear integration.\r\n\r\nThe 7 MW / 7 MWh lithium-ion battery project will provide Ontario’s Independent Electricity System Operator with Reactive Support and Voltage Control services via a pay-for-performance service contract. Additionally, the project has been strategically located in PUC Services territory, allowing it to balance and integrate 60 MWs of photovoltaic solar capacity and 150 MWs of peak load on the end of a 115 kV radial circuit.","developer":"Convergent","electronics\_provider":"GE","energy\_management\_software\_provider":"GE","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2237,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2237/ge\_convergent.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2237/thumb\_ge\_convergent.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2237/partner\_ge\_convergent.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"IESO","latitude":46.521858,"longitude":-84.3460896,"master\_project\_id":null,"name":"Sault Ste. Marie Energy Storage - Convergent + GE / IESO","om\_contractor":"","organization":"","owner\_1":"Convergent","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.convergentep.com/projects/","primary\_reference1":"http://www.genewsroom.com/press-releases/convergent-energy-power-install-ge-energy-storage-system-ontario-grid-operator-280668","projected\_lifetime":null,"rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Voltage Support","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":7000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Ontario","status":"Contracted","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-24T16:09:15Z","updated\_at\_by\_admin":"2017-10-23T23:35:54Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"GE","zip":""}},{"project":{"announcement\_on":"2022-09-15","approval\_status":0,"city":"Ontario","commissioning\_on":"2021-12-31","companion":"Mira Loma Substation","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"sarah@tesla.com","contact\_info\_visible":false,"contact\_name":"Tesla","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-09-17T01:29:43Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Tesla on Thursday announced that it had won a deal to provide 20 megawatts of batteries to the utility to plug into one of its substations and provide energy during peak grid times. Tesla says the large battery installation would be able to provide enough power for 2,500 homes daily or 1,000 Tesla cars.\r\n\r\nTesla was selected to provide a 20 MW / 80 MWh Powerpack system at the Southern California Edison Mira Loma substation. Tesla was the only bidder awarded a utility-owned storage project out of the solicitation.","developer":"Tesla","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2238,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2238/tesla20mw.png","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2238/thumb\_tesla20mw.png"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2238/partner\_tesla20mw.png"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.0074494,"longitude":-117.5609574,"master\_project\_id":null,"name":"Aliso Canyon SCE Mira Loma Substation - Tesla","om\_contractor":"","organization":"","owner\_1":"Southern California Edison","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://insideevs.com/tesla-lands-worlds-largest-battery-energy-storage-project/","primary\_reference1":"http://fortune.com/2016/09/15/tesla-grid-battery-project/","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":null,"service\_use\_case\_3":null,"service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":20000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Contracted","street\_address":"13568 Milliken Ave","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-17T01:29:49Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Tesla","zip":"91761"}},{"project":{"announcement\_on":"2022-08-01","approval\_status":2,"city":"Bloomington","commissioning\_on":"2021-12-31","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"dnordloh@ensync.com; michelle@ensync.com","contact\_info\_visible":false,"contact\_name":"Dan Nordloh; Michelle Montague","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-09-20T18:00:07Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This planned microgrid will include a battery storage system that is grid connected and will draw power from the grid and on-site solar and wind power. The battery system will help with renewable energy smoothing, peak shaving, and demand response to improve power quality and reduce costs, and will also function in island mode to operate independently from the grid during power outages.","developer":"Open Access Technology International, Inc. (OATI)","electronics\_provider":"","energy\_management\_software\_provider":"EnSync Energy Systems","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2239,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"MISO","latitude":44.840798,"longitude":-93.2982799,"master\_project\_id":null,"name":"OATI South Campus Microgrid","om\_contractor":"","organization":"EnSync Energy","owner\_1":"Open Access Technology International, Inc. (OATI)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.prweb.com/releases/2015/08/prweb12923277.htm","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"Renewables Energy Time Shift","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Minnesota","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-21T21:01:01Z","updated\_at\_by\_admin":"2016-09-21T21:01:01Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"EnSync Energy Systems","zip":""}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Maple Grove","commissioning\_on":"2022-08-01","companion":"Residential Hot Water Heaters","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"projects@grenergy.com ","contact\_info\_visible":false,"contact\_name":"Great River Energy","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-09-21T20:36:15Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"This National Rural Electric Cooperative / Cooperative Research Network studied the use of storing thermal energy in residential water heaters using smart contrls by Great River Energy (GRE).\r\n\r\nProject Included:\r\n1. Ten Steffes Water Heater Controls with remotely configurable charge rates were deployed\r\nin the service territories of the participating member distribution cooperatives.\r\n2. Two-way communication of the water heater controls was tested and evaluated.\r\n3. The use of power-line carrier, 700-MHz wireless, and Wi-Fi were tested as possible\r\ncommunication technologies.\r\n4. An economic model was developed for evaluating use of hot water heaters for frequency regulations.\r\n\r\nGRE has configured the grid-interactive electric thermal storage (GETS) units to charge during the off-peak hours each night (11 PM to 7 AM) to charge at an average of 1.5 KW for 8 hours, for a total of 12 kWhs. It can oscillate in response to the AGC or ACE signal by reg up from 1.5 KW to 3 kW or reg down from 1.5 kW to zero","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"Steffes","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2240,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2240/steffesgets.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2240/thumb\_steffesgets.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2240/partner\_steffesgets.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"MISO","latitude":45.0954787,"longitude":-93.437367,"master\_project\_id":null,"name":"NRECA/CRN - Distributed Energy Storage Research Project (Great River Energy)","om\_contractor":"","organization":"","owner\_1":"Great River Energy","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"https://www.smartgrid.gov/files/NRECA\_DOE\_Energy\_Storage.pdf","primary\_reference":"http://www.communitystorageinitiative.com/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"National Rural Electric Cooperative / Cooperative Research Network (NRECA / CRN)","research\_institution\_link":null,"service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":15,"size\_kwh":8.0,"size\_kwh\_hours":8,"size\_kwh\_minutes":0.0,"state":"Minnesota","status":"Operational","street\_address":"12300 Elm Creek Boulevard","systems\_integration":null,"technology\_classification":null,"technology\_type":"Heat Thermal Storage","technology\_type\_l1":"Heat Thermal Storage","technology\_type\_l2":"Heat Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2016-09-21T20:38:17Z","updated\_at\_by\_admin":"2016-09-21T20:38:17Z","updated\_by":null,"updated\_by\_email":null,"utility":"Great River Energy","utility\_type":"Cooperative (Customer Owned)","vendor\_company":"","zip":"55369-4718 "}},{"project":{"announcement\_on":"2022-09-27","approval\_status":0,"city":"Irvine","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"jamier@advmicrogrid.com","contact\_info\_visible":false,"contact\_name":"Jamie Romas","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-09-28T01:19:56Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"The 7 MW / 34 MWh network will utilize Tesla batteries, installed at 11 of IRWD's largest and most energy-intensive facilities – including three water treatment and recycling plants, a deep aquifer treatment system, a groundwater desalter facility and six high-energy pumping stations – as part of a major grid modernization project for Southern California Edison (SCE). The energy storage systems will be linked together as a network providing IRWD facility managers real time visibility and operational flexibility in responding to utility requests for demand reduction.","developer":"Advanced Microgrid Solutions (AMS)","electronics\_provider":"Dynapower","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2241,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2241/411827LOGO.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2241/thumb\_411827LOGO.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2241/partner\_411827LOGO.jpg"}},"integrator\_company":"Advanced Microgrid Solutions (AMS)","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"CAISO","latitude":33.6588951,"longitude":-117.8282121,"master\_project\_id":null,"name":"Irvine Ranch Water District (IRWD) - AMS","om\_contractor":"","organization":"AMS","owner\_1":"Advanced Microgrid Solutions (AMS)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"IRWD expects to see cost savings of more than $500,000 per year on its energy bill","primary\_reference":"http://www.prnewswire.com/news-releases/advanced-microgrid-solutions-and-irvine-ranch-water-district-partner-on-largest-public-water-agency-energy-storage-network-in-the-us-300334050.html","primary\_reference1":"https://electrek.co/2016/09/26/tesla-and-ams-win-another-major-energy-storage-contract-34-mwh-of-battery-capacity-for-water-treatment-facilities/","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Supply Capacity","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":7,"size\_kwh":6.85,"size\_kwh\_hours":6,"size\_kwh\_minutes":51.0,"state":"California","status":"Announced","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-09-28T01:20:27Z","updated\_at\_by\_admin":"2016-09-28T01:20:23Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"Tesla","zip":"92612"}},{"project":{"announcement\_on":null,"approval\_status":2,"city":"Ulm","commissioning\_on":"2022-05-06","companion":"","construction\_on":null,"contact\_city":"Eggenstein-Leopoldshafen","contact\_country":"Germany","contact\_email":"james.barry@kit.edu","contact\_info\_visible":false,"contact\_name":"James Barry","contact\_phone":"+4972160828287","contact\_state":"","contact\_street\_address":"Hermann-von-Helmholtz Platz 1","contact\_zip":"76344","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2016-09-28T12:49:43Z","created\_by\_id":378,"debt\_investor":"","decommissioning\_on":null,"desc":"76 kWh Li-ion battery system AC-coupled to 31 kWp PV array. Intelligent energy management in order to smooth PV fluctuations and load peaks. All energy is consumed on site, no feed-in to local grid.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2242,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Karlsruhe Institute of Technology","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.4263931,"longitude":9.9600006,"master\_project\_id":null,"name":"HIU PV-Battery System","om\_contractor":"","organization":"","owner\_1":"Helmholtz Institute Ulm","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.hiu-batteries.de/fileadmin/user\_upload/Dokumente/Pressemitteilungen/externe/PI\_2015\_047\_eng.pdf","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":"No","research\_desc":"","research\_institution":"Karlsruhe Institute of Technology","research\_institution\_link":"http://www.competence-e.kit.edu/english/index.php","service\_use\_case\_1":"Load Following (Tertiary Balancing)","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Ramping ","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":60,"size\_kwh":1.26666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":16.0,"state":"Baden-Württemberg","status":"Operational","street\_address":"Helmholtzstraße 11","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-12-22T18:31:47Z","updated\_at\_by\_admin":"2016-10-12T17:08:27Z","updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"","zip":"89081"}},{"project":{"announcement\_on":"2022-04-01","approval\_status":1,"city":"Nuremberg","commissioning\_on":"2022-07-15","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"jg@caterva.de","contact\_info\_visible":false,"contact\_name":"Johannes","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2016-10-07T09:45:49Z","created\_by\_id":447,"debt\_investor":"","decommissioning\_on":null,"desc":"For the first time: Frequency Containment Reserve by privately used swarm of Energy Storage Systems \r\n-\tSuccessful pre-qualification as part of the SWARM pilot project \r\n-\tA contribution to the stabilization of the European power transmission grid system \r\n\r\nOn 20 July 2015, pre-qualification was for the first time obtained for a network of privately used solar Energy Storage Systems (ESS) for supply of Frequency Containment Reserve (FCR) in Germany. As a result, 65 ESS in the SWARM pilot project were allowed to immediately contribute to stabilization of the power grid. The joint project by the technology and system supplier, Caterva GmbH, and by the Nuremberg community utility N-ERGIE Aktiengesellschaft, is supported by a grant of the State of Bavaria. Siemens AG is a technology partner. \r\nThe special feature of the large-scale virtual storage system is the networking of the storage units of household size. The ESS feature lithium-ion storage batteries. Siemens delivers the power electronics system. \r\nEach ESS is provided with its own control unit, so that it can react on a stand-alone basis to grid frequency. The ESS, installed in private households, are connected via the UMTS network, with the control center at Caterva, which coordinates the households as a swarm. The control center acquires the latest individual data on storage-charging levels of the ESS and regulates the swarm such that the FCR, also known as frequency regulation or balancing power, on offer is actually available. At the TenneT control station, the data are forwarded online. The N-ERGIE power plant control station is responsible 24 by 7 for operator control and supervision of the large-scale virtual storage system, as it is for its own power generating facilities. \r\n\r\nDouble benefits for households \r\nThe beneficiaries of the ESS developed by Caterva – each with a total output rating of 20 kW and a capacity of 21 kWh – are the operators of private roof-top PV installations. Thanks to the storage systems, these users can cover 60 to 80 % of their power requirements from their own solar systems – and can at the same time contribute to German energy transition (Energiewende) by providing balancing power. \r\nAs a result of the considerably larger storage-battery capacity of the ESS in comparison to conventional PV buffer-storage, participation in the FCR market means no restriction to users in the consumption of the energy that they themselves have generated. \r\n\r\nThe first 65 ESS installations are distributed throughout the entire distribution system area of N-ERGIE, which is over 8,000 km² in size. \r\n\r\nContribution to grid stability \r\nWith provision of positive and negative FCR, the swarm enhances grid stability. Power balancing is necessary to compensate for the imbalance in power generation and consumption in such a way that grid frequency remains constant at 50 hertz. Balancing power is provided by transmission system operators in three specifications: FCR, Frequency Restoration Reserve, and Replacement Reserve (minute balancing power). \r\nDemands placed on FCR are the strictest, since it must be provided within 30 seconds. Before Restoration and Replacement Reserve power, FCR is supplied directly proportionally to the deviation of grid frequency by each ESS. \r\n\r\nSwarm Energy Storage Systems satisfy strictest requirements \r\nThe ESS swarm system has impressively fulfilled all requirements. The lithium-ion storage batteries installed in the ESS units enable a reaction period of just a few seconds. The large-scale virtual power storage system therefore balances fluctuation in the power grid within seconds and provides a key contribution to system stability.","developer":"Caterva, N-ERGIE","electronics\_provider":"","energy\_management\_software\_provider":"Caterva","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2243,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2243/ESS\_Caterva\_geschlossen.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2243/thumb\_ESS\_Caterva\_geschlossen.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2243/partner\_ESS\_Caterva\_geschlossen.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"Yes","is\_sub\_project":null,"iso":"TenneT","latitude":49.45203,"longitude":11.07675,"master\_project\_id":null,"name":"Caterva SWARM","om\_contractor":"","organization":"Caterva","owner\_1":"Caterva","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"More than one year successfull commercial delivery of balacing power, on average 2.700 kWh of additional self-consumption per home and year","primary\_reference":"http://swarm.bayern","primary\_reference1":"http://caterva.de","projected\_lifetime":"20.0","rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1300,"size\_kwh":1.33333333333333,"size\_kwh\_hours":1,"size\_kwh\_minutes":20.0,"state":"Bavaria","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-01T01:35:39Z","updated\_at\_by\_admin":"2016-10-12T17:11:31Z","updated\_by":360,"updated\_by\_email":"jbartell@strategen.com","utility":"N-ERGIE AG","utility\_type":"","vendor\_company":"Caterva, Saft, Siemens","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Polebridge","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"derekm@simpliphipower.com","contact\_info\_visible":false,"contact\_name":"Derek Meng","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-11-15T22:15:07Z","created\_by\_id":451,"debt\_investor":"","decommissioning\_on":"2022-07-26","desc":"SIMPLIPHI POWER Polebridge Mercantile & Cabins is located 45 miles from the Utility Grid, on the western edge of Glacier National Park and has used a diesel-powered generator to provide power since the 1950’s. The constant rumble of the generator was an unwelcome addition to the majestic beauty of this unique wilderness location. A small 5kW solar power system with a large 48 volt flooded lead acid battery bank was installed in 2010, but proved too inadequate to meet load requirements and suffered from repeated deep cycle discharging. An additional 25kW of solar power were added along with SimpliPhi’s 3.4 kWh 48 Volt batteries to store power for overnight loads. The generator no longer runs continuously and guests may now enjoy the peace and silence of this remote natural paradise.\r\n\r\nTwelve 48V SimpliPhi Power PHI 3.4 kWh LFP batteries are arranged in parallel to increase capacity. If the mercantile’s electrical loads increase over time, the SimpliPhi batteries easily scale, due to their compact, efficient size and weight to increase power output and capacity.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2245,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.765106,"longitude":-114.284141,"master\_project\_id":null,"name":"Polebridge Mercantile & Cabins","om\_contractor":"","organization":"SimpliPhi Power","owner\_1":"Polebridge Mercantile & Cabins","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://simpliphipower.com/polebridge-mercantile-off-grid-solar-power-energy-storage/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":null,"service\_use\_case\_3":null,"service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":22,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Montana","status":"De-Commissioned","street\_address":"265 Polebridge Loop","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-12-22T18:09:42Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"SimpliPhi Power","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Folsom","commissioning\_on":"2022-11-29","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"derekm@simpliphipower.com","contact\_info\_visible":false,"contact\_name":"Derek Meng","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-11-15T22:29:31Z","created\_by\_id":451,"debt\_investor":"","decommissioning\_on":null,"desc":"SIMPLIPHI POWER provides reliable, clean and uninterrupted energy storage and management for the Whole Foods solar sign system located at their store in Folsom and two other locations in California.\r\n\r\nDesigned by SimpliPhi Power, the 22 solar-panels array collects enough energy in 6 hours to power the entire sign load for this 1+ acre store for more than 36 hours. The challenge was to create a solution that would store energy in a compact, maintenance-free, environmentally conscious system, that could withstand the Folsom California store’s rooftop temperatures of more than 140 degrees. Mission accomplished!","developer":"SimpliPhi Power","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2246,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":38.647953,"longitude":-121.1207704,"master\_project\_id":null,"name":"Wholefood Signage System","om\_contractor":"","organization":"SimpliPhi Power","owner\_1":"Whole Foods","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://simpliphipower.com/solar-powered-signage-system-whole-foods/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":null,"service\_use\_case\_3":null,"service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":1,"size\_kwh":25.0,"size\_kwh\_hours":25,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"270 Palladio Pkwy","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-12-22T18:09:52Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"SimpliPhi Power","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Sun Valley","commissioning\_on":"2022-11-22","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"derekm@simpliphipower.com","contact\_info\_visible":false,"contact\_name":"Derek Meng","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-11-15T22:43:18Z","created\_by\_id":451,"debt\_investor":"","decommissioning\_on":null,"desc":"SIMPLIPHI POWER provides reliable, clean and uninterrupted off-grid mobile energy storage and management for Airbnb and kitHAUS. State-of-the-art, eco- friendly pre-fab “pop-up” living quarters are energy independent and secure with the wall mounted power kit. Anytime. Anywhere.\r\n\r\nDuring a celebrity-themed promotion in Los Angeles, California, design-savvy stars, including Moby, James Franco, Anjelica Houston and Molly Sims, were recruited to curate a series of Airbnb pop-up listings. The SimpliPhi PowerKit stores more than 5.2 kilowatts of renewable energy to provide backup and power security for all electrical equipment in the mobile kitHAUS living quarters. Without energy storage, renewable sources of power are intermittent and unpredictable, as is the grid in black-out and emergency scenarios in which the centralized delivery of power breaks down.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2247,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2247/kitHAUS\_Picture\_1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2247/thumb\_kitHAUS\_Picture\_1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2247/partner\_kitHAUS\_Picture\_1.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.2483769,"longitude":-118.3860171,"master\_project\_id":null,"name":"Airbnb and kitHAUS Microgrid Pop Up House","om\_contractor":"","organization":"SimpliPhi Power","owner\_1":"kitHAUS","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://simpliphipower.com/backup-power-and-security-airbnb-and-kithaus/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":null,"service\_use\_case\_3":null,"service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":5,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"9825 Glenoaks Blvd","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-12-22T18:09:57Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"SimpliPhi Power","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"The Valley","commissioning\_on":"2022-08-01","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"cpalombini@dynapower.com","contact\_info\_visible":false,"contact\_name":"Chip Palombini","contact\_phone":"N/A","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"Pacific Data Electric","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Anguilla","created\_at":"2016-11-17T16:55:01Z","created\_by\_id":453,"debt\_investor":"","decommissioning\_on":null,"desc":"The energy storage system to supports a 1MW solar installation for a desalination reverse osmosis plant. This is the largest installation of it's kind in the region and is a potential game changer for the energy policy and delivery in the region. The system went live in August 2014. The resort can operate it's reverse osmosis plant utilizing 100% renewable energy, and produce over 300,000 gallons of fresh water day per day using solar + storage from the Dynapower inverter. ","developer":"","electronics\_provider":"Dynapower","energy\_management\_software\_provider":"EnergyIQ","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2248,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2248/Cuisinart\_500kVA\_Energy\_Storage\_450w.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2248/thumb\_Cuisinart\_500kVA\_Energy\_Storage\_450w.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2248/partner\_Cuisinart\_500kVA\_Energy\_Storage\_450w.jpg"}},"integrator\_company":"Pacific Data Electric","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":18.1758569,"longitude":-63.1056891,"master\_project\_id":null,"name":"CuisinArt Resort Solar Plus Storage Microgird","om\_contractor":"","organization":"Dynapower","owner\_1":"Customer","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.pdeinc.com/net-zero-renewables-microgrid-ev-charging/","primary\_reference1":"","projected\_lifetime":"15.0","rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Resiliency","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"Secondary Distribution","size\_kw":500,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Rendezvous Bay","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-12T04:10:49Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"LG Chem","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"City of Commerce","commissioning\_on":"2022-06-16","companion":"Solar","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"cpalombini@dynapower.com","contact\_info\_visible":false,"contact\_name":"Chip Palombini","contact\_phone":"N/A","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"Pacific Data Electric","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-11-17T18:52:06Z","created\_by\_id":453,"debt\_investor":"","decommissioning\_on":null,"desc":"As defined by the U.S. Department of Energy, “a zero net energy (ZNE) is a building with zero net energy consumption, meaning the total amount of energy used by the building on an annual basis is roughly equal to the amount of renewable energy created on the site.” The NZP-ETI takes it a step farther, as it will generate more energy than it consumes each year. This excess energy, generated by an onsite photovoltaic solar array, can be stored in the center’s battery storage system or discharged back into the electric grid system.","developer":"","electronics\_provider":"Dynapower","energy\_management\_software\_provider":"Energy IQ","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2249,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"Pacific Data Electric","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.0005691,"longitude":-118.1597929,"master\_project\_id":null,"name":"Net Zero Plus Electric Training Institute (NZP-ETI) - Solar Plus Storage","om\_contractor":"","organization":"Dynapower","owner\_1":"Customer","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://nzp-eti.com/nzp-news/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Demand Response","service\_use\_case\_3":"Electric Bill Management","service\_use\_case\_4":"Electric Energy Time Shift","service\_use\_case\_5":"Microgrid Capability","service\_use\_case\_6":"On-Site Power","service\_use\_case\_7":"Renewables Capacity Firming","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":500,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-12-24T18:15:21Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":"2022-12-01","approval\_status":0,"city":"yarmouth","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"rlin@neces.com","contact\_info\_visible":false,"contact\_name":"Roger Lin","contact\_phone":"5084977261","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2016-12-01T15:53:17Z","created\_by\_id":454,"debt\_investor":"","decommissioning\_on":null,"desc":"16.2MW battery energy storage sysetm","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2250,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ISO-NE","latitude":43.8006208,"longitude":-70.1867227,"master\_project\_id":null,"name":"Nextera Wyman","om\_contractor":"","organization":"NEC Energy Solutions","owner\_1":"Nextera Energy","owner\_2":"","owner\_type":"3","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.transmissionhub.com/articles/2016/09/nextera-develops-16-2-mw-battery-project-at-wyman-plant-in-maine.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Frequency 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Garrison","contact\_phone":"+447785353901","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"Solar PV Partners","contractor\_2":"","contractor\_3":"","cost\_CAPEX":27000.0,"cost\_OPEX":0.0,"country":"France","created\_at":"2016-12-11T20:20:51Z","created\_by\_id":456,"debt\_investor":"","decommissioning\_on":null,"desc":" 30.6kWhr Aquion Aqueous Hybrid Ion battery with 10kWp Solar array replaced 6kW diesel generator running 24/7.","developer":"Solar PV Partners","electronics\_provider":"SunGift Solar","energy\_management\_software\_provider":"Victron","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third 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due to shut down of diesel generator. More efficient use of staff time and tons of carbon reduction being calculated.","primary\_reference":"http://solarpvpartners.com","primary\_reference1":"","projected\_lifetime":"12.0","rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":"Onsite Renewable Generation Shifting","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":11,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"Exmoor","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Sodium based Battery","technology\_type\_l1":"Sodium based Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-12-22T18:14:18Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Aquion Energy Storage","zip":"EX31 4HQ"}},{"project":{"announcement\_on":"2022-11-01","approval\_status":0,"city":"Marengo","commissioning\_on":null,"companion":"Grid","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"contact@sgemgroup.com","contact\_info\_visible":false,"contact\_name":"SGEM","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"Leclanché SA","contractor\_2":"","contractor\_3":"","cost\_CAPEX":20000000.0,"cost\_OPEX":null,"country":"United States","created\_at":"2016-12-12T08:03:40Z","created\_by\_id":457,"debt\_investor":"","decommissioning\_on":null,"desc":"The Marengo plant will be interconnected to the local Commonwealth Edison Company (ComEd) electric grid and will provide RegD real-time frequency regulation service to PJM Interconnection (PJM). The project will respond almost instantly to the continually changing needs of the grid, allowing PJM to deliver higher-quality reliable electrical service, at a lower cost, to end users in the 13 states and the District of Columbia.\r\nThe Marengo Project was developed by GlidePath, a leading developer of advanced energy solutions, which recently sold three similar projects to British independent power producer RES and French utility EDF. The Leclanché integrated BESS provides superior performance as defined by the RegD PJM Regulation Market. The project starts construction in November 2016 and will be placed into operation in 2017","developer":"GlidePath","electronics\_provider":"","energy\_management\_software\_provider":"Greensmith","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2252,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2252/Marengo\_3D.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2252/thumb\_Marengo\_3D.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2252/partner\_Marengo\_3D.jpg"}},"integrator\_company":"Leclanché SA","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":42.2486332,"longitude":-88.6084269,"master\_project\_id":null,"name":"Marengo Project","om\_contractor":"","organization":"","owner\_1":"SGEM","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.sgemgroup.com/","primary\_reference1":"http://www.leclanche.com/","projected\_lifetime":"10.0","rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":null,"service\_use\_case\_3":null,"service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":20000,"size\_kwh":0.25,"size\_kwh\_hours":0,"size\_kwh\_minutes":15.0,"state":"Illinois","status":"Under Construction","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2016-12-22T18:14:37Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"ComEd","utility\_type":"Investor Owned","vendor\_company":"Leclanché SA","zip":""}},{"project":{"announcement\_on":"2022-11-30","approval\_status":0,"city":"Amsterdam","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"marcus.fendt@mobilityhouse.com","contact\_info\_visible":true,"contact\_name":"Marcus Fendt","contact\_phone":"+4989416143012","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Netherlands","created\_at":"2017-01-02T12:09:52Z","created\_by\_id":397,"debt\_investor":"","decommissioning\_on":null,"desc":"Under the lead of The Mobility House (TMH) Amsterdam ArenA installs a 3,75MW/4MWh energy storage system that makes the energy management of the stadium more efficient, sustainable and reliable. TMH and Amsterdam ArenA choose Nissan, Eaton as supplier of the system powered by second-life batteries. The system uses Eaton’s bidirectional inverters and the equivalent of 280 Nissan LEAF batteries stored in racks It will be used for back-up power during major events replacing diesel generators in the future, assisting utilities during periods of high demand and grid stabilization services. ","developer":"","electronics\_provider":"Eaton","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2253,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2253/Amsterdam\_ArenA\_Night.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2253/thumb\_Amsterdam\_ArenA\_Night.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2253/partner\_Amsterdam\_ArenA\_Night.jpg"}},"integrator\_company":"The Mobility House","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"TenneT","latitude":52.3143277,"longitude":4.9409269,"master\_project\_id":null,"name":"Amsterdam Energy Arena","om\_contractor":"","organization":"The Mobility House","owner\_1":"Amsterdam Energy Arena B.V.","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://mobilityhouse.com/en/the-mobility-house-provides-energy-solution-in-amsterdam-arena-project/","primary\_reference1":"https://www.youtube.com/watch?v=cXan\_-AawKs&feature=youtu.be","projected\_lifetime":"15.0","rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_4":"Microgrid Capability","service\_use\_case\_5":"On-Site Power","service\_use\_case\_6":"Onsite Renewable Generation Shifting","service\_use\_case\_7":"Resiliency","service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":3750,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Netherlands","status":"Contracted","street\_address":"ArenA Boulevard 1","systems\_integration":null,"technology\_classification":null,"technology\_type":"Electro-chemical","technology\_type\_l1":"Electro-chemical","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-03-16T16:45:23Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Nissan","zip":"1101"}},{"project":{"announcement\_on":"2022-08-18","approval\_status":1,"city":"Escondido","commissioning\_on":"2022-02-24","companion":"","construction\_on":"2022-09-01","contact\_city":"","contact\_country":"","contact\_email":"dbalfour@semprautilities.com","contact\_info\_visible":false,"contact\_name":"Don Balfour","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2017-03-06T23:57:42Z","created\_by\_id":468,"debt\_investor":"","decommissioning\_on":null,"desc":"SDG&E is showcasing the world’s largest lithium-ion battery energy storage facility in partnership with AES Energy Storage, which will enhance regional energy reliability while maximizing renewable energy use. The 30 megawatt (MW) energy storage facility is capable of storing up to 120 megawatt hours of energy, the energy equivalent of serving 20,000 customers for four hours.\r\n\r\nThe California Public Utility Commission (CPUC) directed Southern California investor-owned electric utilities to fast-track additional energy storage options to enhance regional energy reliability. In response, SDG&E expedited ongoing negotiations and contracted with AES Energy Storage.","developer":"","electronics\_provider":"AES Energy Storage","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2254,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2254/SDG\_E\_Escondido\_Battery\_Storage\_Aerial\_Shot\_\_5\_.JPG","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2254/thumb\_SDG\_E\_Escondido\_Battery\_Storage\_Aerial\_Shot\_\_5\_.JPG"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2254/partner\_SDG\_E\_Escondido\_Battery\_Storage\_Aerial\_Shot\_\_5\_.JPG"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.1192068,"longitude":-117.086421,"master\_project\_id":null,"name":"Escondido Energy Storage","om\_contractor":"","organization":"SDG&E","owner\_1":"SDG&E","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://sdgenews.com/battery-storage/sdge-unveils-world%E2%80%99s-largest-lithium-ion-battery-storage-facility","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":30000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-24T16:08:48Z","updated\_at\_by\_admin":"2017-10-23T23:52:32Z","updated\_by":null,"updated\_by\_email":null,"utility":"San Diego Gas and Electric","utility\_type":"Investor 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rate","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2259,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2259/HLB.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2259/thumb\_HLB.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2259/partner\_HLB.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.543932,"longitude":129.256337,"master\_project\_id":null,"name":"Ulsan Onsan Industrial Complex VRFB Project","om\_contractor":"","organization":"H2 Inc.","owner\_1":"Ulsan Manufacturing Facility","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance metrics not available.","primary\_reference":"http://www.h2aec.com/sub/product/product01.php#reference\_map","primary\_reference1":"http://www.etnews.com/20170307000107","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":100,"size\_kwh":6.0,"size\_kwh\_hours":6,"size\_kwh\_minutes":0.0,"state":"Gyengnam","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Flow Battery","technology\_type\_l2":"Vanadium Redox Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-26T05:41:08Z","updated\_at\_by\_admin":"2017-10-24T01:33:44Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"H2 Inc.","zip":""}},{"project":{"announcement\_on":"2022-10-04","approval\_status":1,"city":"Norwalk","commissioning\_on":"2022-03-30","companion":"LM6000 Gas Turbine","construction\_on":"2021-12-31","contact\_city":"","contact\_country":"","contact\_email":"Christopher1.White@ge.com","contact\_info\_visible":false,"contact\_name":"Christopher White","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Wellhead Power Solutions","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2017-05-11T17:25:00Z","created\_by\_id":476,"debt\_investor":"","decommissioning\_on":null,"desc":"GE (NYSE: GE) and Southern California Edison (SCE), an Edison International (NYSE: EIX) company commissioned the world’s first battery-gas turbine hybrid system in Norwalk, California. This is the first of two units that GE has delivered for SCE only months after announcing initial deployment plans of this innovative technology.\r\n\r\nThis system, called the LM6000 Hybrid Electric Gas Turbine (Hybrid EGT)\* supports SCE’s increasing renewable energy capacity by providing quick start, fast ramping capabilities when they are needed. The unit integrates a 10 MW/ 4.3 MWh battery energy storage system capable of immediately providing power with GE’s proven 50MW LM6000 aeroderivative gas turbine.\r\n\r\n(Image credit: InsideEdison - http://insideedison.com/stories/sce-unveils-worlds-first-low-emission-hybrid-battery-storage-gas-turbine-peaker-system)","developer":"Wellhead Power Solutions","electronics\_provider":"General Electric","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Southern California Edison","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2260,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2260/DSC\_2014\_mid.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2260/thumb\_DSC\_2014\_mid.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2260/partner\_DSC\_2014\_mid.jpg"}},"integrator\_company":"General Electric","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.9022367,"longitude":-118.081733,"master\_project\_id":null,"name":"SCE LM6000 Hybrid EGT - Center","om\_contractor":"","organization":"","owner\_1":"Southern California Edison","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.businesswire.com/news/home/20170417005741/en/GE-Southern-California-Edison-Debut-World%E2%80%99s-Battery-Gas","primary\_reference1":"https://www.edison.com/content/dam/eix/documents/innovation/battery-storage-fact-sheet.pdf","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10000,"size\_kwh":0.416666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":25.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-27T00:09:51Z","updated\_at\_by\_admin":"2017-05-16T17:24:14Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"General Electric","zip":""}},{"project":{"announcement\_on":"2022-10-04","approval\_status":1,"city":"Rancho Cucamonga","commissioning\_on":"2022-04-03","companion":"LM6000 Gas Turbine","construction\_on":"2021-12-31","contact\_city":"","contact\_country":"","contact\_email":"Christopher1.White@ge.com","contact\_info\_visible":false,"contact\_name":"Christopher White","contact\_phone":"","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Wellhead Power Solutions","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2017-05-11T17:25:01Z","created\_by\_id":476,"debt\_investor":"","decommissioning\_on":null,"desc":"GE (NYSE: GE) and Southern California Edison (SCE), an Edison International (NYSE: EIX) company commissioned the world’s second battery-gas turbine hybrid system in Rancho Cucamonga, California. This is the second of two units that GE has delivered for SCE only months after announcing initial deployment plans of this technology.\r\n\r\nThis system, called the LM6000 Hybrid Electric Gas Turbine (Hybrid EGT)\* supports SCE’s increasing renewable energy capacity by providing quick start, fast ramping capabilities when they are needed. The unit integrates a 10 MW/ 4.3 MWh battery energy storage system capable of immediately providing power with GE’s proven 50MW LM6000 aeroderivative gas turbine.","developer":"Wellhead Power Solutions","electronics\_provider":"General Electric","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"Southern California Edison","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2261,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2261/hybrid\_battery\_storage\_and\_gas\_turbine\_system.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2261/thumb\_hybrid\_battery\_storage\_and\_gas\_turbine\_system.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2261/partner\_hybrid\_battery\_storage\_and\_gas\_turbine\_system.jpg"}},"integrator\_company":"General Electric","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.1063989,"longitude":-117.5931084,"master\_project\_id":null,"name":"SCE LM6000 Hybrid EGT - Grapeland","om\_contractor":"","organization":"","owner\_1":"Southern California Edison","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.businesswire.com/news/home/20170417005741/en/GE-Southern-California-Edison-Debut-World%E2%80%99s-Battery-Gas","primary\_reference1":"https://www.edison.com/content/dam/eix/documents/innovation/battery-storage-fact-sheet.pdf","projected\_lifetime":"10.0","rdd\_status":"No","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":10000,"size\_kwh":0.416666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":25.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium Ion Titanate Battery","technology\_type\_l2":"Lithium-ion Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-27T00:08:46Z","updated\_at\_by\_admin":"2017-05-16T17:25:48Z","updated\_by":null,"updated\_by\_email":null,"utility":"Southern California Edison","utility\_type":"Investor Owned","vendor\_company":"General Electric","zip":""}},{"project":{"announcement\_on":"2022-06-22","approval\_status":1,"city":"Alice Springs","commissioning\_on":null,"companion":"Solar","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"Sarah.gray@vector.co.nz","contact\_info\_visible":false,"contact\_name":"Sarah Gray","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2017-07-28T02:57:02Z","created\_by\_id":485,"debt\_investor":"","decommissioning\_on":null,"desc":"The 5MW energy storage system is the largest grid connected system in Australia and was won after a 2 stage process (expression of interest and request for tender) that began late last year by the Vector Australia team. This system will be connected at TGs Ron Goodin Power Station in Alice Springs as a first stage to transition to a renewable future. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2263,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2263/AliceSprings\_Battery\_small.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2263/thumb\_AliceSprings\_Battery\_small.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2263/partner\_AliceSprings\_Battery\_small.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-23.698042,"longitude":133.8807471,"master\_project\_id":null,"name":"Vector Alice Springs Energy Storage Project","om\_contractor":"","organization":"Vector Limited","owner\_1":"Territory Generation","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Once constructed: Smoothing of variable PV generation, Frequency control ancillary services (FCAS) , Peak shaving, Reactive power and voltage control, Load shifting","primary\_reference":"https://www.vector.co.nz/news/northern-territory-seeks-vector-solution-for-batte","primary\_reference1":"http://newsroom.nt.gov.au/mediaRelease/23327","projected\_lifetime":"25.0","rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Demand Response","service\_use\_case\_10":"Renewables Capacity Firming","service\_use\_case\_11":"Renewables Energy Time Shift","service\_use\_case\_12":"Resiliency","service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_4":"Frequency Regulation","service\_use\_case\_5":"Grid-Connected Commercial (Reliability & Quality) ","service\_use\_case\_6":"Grid-Connected Residential (Reliability)","service\_use\_case\_7":"Load Following (Tertiary Balancing)","service\_use\_case\_8":"Onsite Renewable Generation Shifting","service\_use\_case\_9":"Ramping ","siting":"Primary Distribution","size\_kw":5000,"size\_kwh":0.666666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":40.0,"state":"Northern Territory","status":"Announced","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery ","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium-ion Battery ","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-08T01:09:41Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Territory Generation","utility\_type":"","vendor\_company":"Vector","zip":"0874"}},{"project":{"announcement\_on":"2022-04-14","approval\_status":0,"city":"Sydney","commissioning\_on":"2022-09-30","companion":"","construction\_on":"2022-03-31","contact\_city":null,"contact\_country":null,"contact\_email":"jknott@uow.edu.au","contact\_info\_visible":true,"contact\_name":"Jonathan Knott","contact\_phone":"+61 2 4298 1424","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2017-08-21T03:01:30Z","created\_by\_id":462,"debt\_investor":"","decommissioning\_on":null,"desc":"The Institute for Superconducting and Electronic Materials (ISEM) at the University of Wollongong is leading a $10.5m, ARENA-funded project to develop a novel sodium-ion battery architecture for use in renewable energy storage applications. \r\n\r\nThe project consortium includes:\r\n•\tThe Australian Power Quality and Reliability Centre \r\n•\tThe Sustainable Buildings Research Centre\r\n•\tLiao Ning Hong Cheng Electric Power Co.\r\n•\tHebei ANZ New Energy Technology Co.\r\n•\tMcNair Technology Co.\r\n•\tNano-Nouvelle\r\n•\tSydney Water Corporation\r\n\r\n5 kWh sodium-ion battery modules with integrated BMS and thermal management will be installed at the Illawarra Flame House and Sydney Water’s Bondi sewage pumping station (30 kWh total pack size) to demonstrate the applicability of sodium-ion battery technology to renewable energy storage. The Sydney Water installation will also include an innovative Energy Management System that will control generation, storage and consumption of energy to ensure maximum system efficiency. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2264,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-33.8688197,"longitude":151.2092955,"master\_project\_id":null,"name":"The Smart Sodium Storage Solution (S4) Project","om\_contractor":"","organization":"Institute for Superconducting and Electronic Materials","owner\_1":"University of Wollongong","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://isem.uow.edu.au","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Renewables Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Resiliency","service\_use\_case\_3":null,"service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":30,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"NSW","status":"Announced","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Sodium based Battery","technology\_type\_l1":"Sodium based Battery","technology\_type\_l2":"Sodium based Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-09-26T03:42:40Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"San Pedro","commissioning\_on":"2022-09-19","companion":"125 kWp Solar PV, Diesel (1 × 200 kVA, 2 × 150 kVA) ","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"bismarck@qinous.com","contact\_info\_visible":true,"contact\_name":"Busso v. Bismarck","contact\_phone":"N/A","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"KRAFTWERK Renewable Power Solutions GmbH","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Chile","created\_at":"2017-09-05T14:32:48Z","created\_by\_id":305,"debt\_investor":"","decommissioning\_on":null,"desc":"The PV-Battery system will supply the Hotel Tierra Atacama in San Pedro. The battery storage system (180kVA/335kWh) with a mini-grid management and monitoring system is developed by the German system integrator QINOUS. The system operates totally of grid with 3 already existing diesel gensets in parallel (1 × 200 kVA, 2 × 150 kVA) ","developer":"KRAFTWERK Renewable Power Solutions GmbH","electronics\_provider":"QINOUS GmbH","energy\_management\_software\_provider":"QINOUS GmbH","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2265,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2265/Tierra-Atacama-Hotel-Spa-10.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2265/thumb\_Tierra-Atacama-Hotel-Spa-10.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2265/partner\_Tierra-Atacama-Hotel-Spa-10.jpg"}},"integrator\_company":"QINOUS GmbH","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-22.9087073,"longitude":-68.1997156,"master\_project\_id":null,"name":"Tierra Atacama Hotel & Spa - KRAFTWERK Renewable Power Solutions GmbH","om\_contractor":"KRAFTWERK Renewable Power Solutions GmbH","organization":"Qinous GmbH","owner\_1":"Customer","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.qinous.de/en/references/tierra-atacama-resort/","primary\_reference1":"","projected\_lifetime":"20.0","rdd\_status":"","research\_desc":"","research\_institution":"","research\_institution\_link":"","service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"On-Site Power","service\_use\_case\_4":"Onsite Renewable Generation Shifting","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":180,"size\_kwh":1.86666666666667,"size\_kwh\_hours":1,"size\_kwh\_minutes":52.0,"state":"El Loa","status":"Operational","street\_address":"","systems\_integration":"","technology\_classification":"","technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-05T06:14:04Z","updated\_at\_by\_admin":"2017-10-24T00:51:59Z","updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Samsung SDI","zip":""}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Tallangatta","commissioning\_on":"2022-11-29","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"JBartell@strategen.com","contact\_info\_visible":false,"contact\_name":"Jake Bartell","contact\_phone":"4802484634","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2017-10-04T23:27:32Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"\"The Tallangatta Integrated Community Centre was a key project identified through the Tallangatta Tomorrow masterplanning process. 30 kW Solar panel rooftop installation comprising of 116 panels; 16 KWh Sonnen 3 Phase Eco 8 Lithium Ion Phosphate battery system. The project was also identified during Strategic Early Years planning to support future growth of Tallangatta. The project has received $2.2 million in funding from the Victorian State Government.\r\n\r\nThe sustainable, solar passive, architectually designed facility will incorporate a diverse range of services including a modern library, community space, public access computers, kindergarten, long day care, an eco-educational centre, maternal health and provision for Council and other community services.The delivery of this project supported by State and Local government collaboration. Towong Shire Council successfully applied for $800,000 from the Department of Education and Early Childhood Development (Victoria), $500,000 from the Department of Sustainability (Victoria), $400,000 from the Victorian Living Libraries Infrastructure Fund and $500,000 from Regional Development Victoria. The Council itself has contributed $400,000 to support the project; a significant amount considering annual rate income is only around $4 million. \"","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2267,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-36.2165804,"longitude":147.1786857,"master\_project\_id":null,"name":"Tallangatta Integrated Community Centre","om\_contractor":"","organization":"Strategen Consulting","owner\_1":"Sonnen","owner\_2":"","owner\_type":"3","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.towong.vic.gov.au/major-projects/new-development/tallangatta-integrated-community-centre.asp","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Resiliency","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":16,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Victoria","status":"Operational","street\_address":"35 Towong Street","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium Iron Phosphate Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium Iron Phosphate Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-10T01:07:44Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"3700"}},{"project":{"announcement\_on":"2022-06-16","approval\_status":0,"city":"Alexandria","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"JBartell@strategen.com","contact\_info\_visible":false,"contact\_name":"Jake Bartell","contact\_phone":"4802484634","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2017-10-05T00:20:20Z","created\_by\_id":1,"debt\_investor":"","decommissioning\_on":null,"desc":"Tesla has been tapped by NSW network operator Transgrid to deliver several of its grid-scale Powerpack battery storage systems to support remote dispatch of demand response and the smoothing of variable solar generation. The job, part of winning tender in 2016, will deploy 250kW/500kWh Powerpack systems, with the first installation slated for the City of Sydney's Alexandra Canal Works depot.","developer":"TransGrid","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2268,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-33.90166,"longitude":151.20007,"master\_project\_id":null,"name":"TransGrid City of Sydney's Alexandra Canal Works Depot","om\_contractor":"","organization":"Strategen Consulting","owner\_1":"TransGrid","owner\_2":"","owner\_type":"3","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.transgrid.com.au/transgrid-to-use-tesla-batteries-in-sydney-trial","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Demand Response","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":null,"service\_use\_case\_3":null,"service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":250,"size\_kwh":2.0,"size\_kwh\_hours":2,"size\_kwh\_minutes":0.0,"state":"New South Wales","status":"Announced","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-10-05T00:20:49Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"Investor Owned","vendor\_company":"Tesla","zip":""}},{"project":{"announcement\_on":"2022-10-06","approval\_status":1,"city":"Koblenz","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":"","contact\_country":"","contact\_email":"t.adler@solibra.eu","contact\_info\_visible":false,"contact\_name":"Tom","contact\_phone":"+1703737451","contact\_state":"","contact\_street\_address":"","contact\_zip":"","contractor\_1":"Solibra System Montage GmbH ","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2017-10-06T12:50:33Z","created\_by\_id":326,"debt\_investor":"","decommissioning\_on":null,"desc":"Vanadium Redox Flow Energy Storage System . 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In response to Cannon-Brookes’ incredulity about the speed that Tesla was claiming it could install grid-tied batteries, Musk promised to deliver a system to South Australia, a state that’s suffered debilitating blackouts in recent summers, “in 100 days or its free.”","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2271,"image\_1":{"url":"../../images/2271/rtx3kmdc-edit\_custom-3d694deff9f99fd4e17a4c7f3738df4acf46a7b9-s800-c85.jpg","thumb":{"url":"../../images/2271/thumb\_rtx3kmdc-edit\_custom-3d694deff9f99fd4e17a4c7f3738df4acf46a7b9-s800-c85.jpg"},"partner":{"url":"../../images/2271/partner\_rtx3kmdc-edit\_custom-3d694deff9f99fd4e17a4c7f3738df4acf46a7b9-s800-c85.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-33.205278,"longitude":138.601944,"master\_project\_id":null,"name":"Hornsdale Power Reserve 100MW / 129MWh Tesla 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year.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2273,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2273/unnamed1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2273/thumb\_unnamed1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2273/partner\_unnamed1.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-13.7128168,"longitude":130.6872034,"master\_project\_id":null,"name":"Nauly Community Solar + Storage ","om\_contractor":"","organization":"Strategen Consulting","owner\_1":"ARENA","owner\_2":"Northern Territory 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west of Adelaide. A partnership between the Australian Renewable Energy Agency and network provider ElectraNet, it is expected to be operating by late summer, when electricity demand typically peaks.\r\n\r\nARENA will contribute up to $12 million toward the cost of the battery.\r\n\r\nSouth Australia no longer has any coal-fired power, and gets about 40 per cent of its electricity from wind farms. With expensive natural gas-fired plants responsible for much of the recent surge in power bills due to inflated export prices, attention has turned to new, cheaper ways to support variable generation.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2274,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-35.0184732,"longitude":137.5981723,"master\_project\_id":null,"name":"Dalrymple 30 MW / 8 MWh battery","om\_contractor":"","organization":"Strategen Consulting","owner\_1":"ElectraNet","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://arena.gov.au/blog/southaustraliabattery/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Resiliency","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":30000,"size\_kwh":0.266666666666667,"size\_kwh\_hours":0,"size\_kwh\_minutes":16.0,"state":"South Australia","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-08T04:12:34Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Plumpton ","commissioning\_on":"2022-09-27","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"JBartell@strategen.com","contact\_info\_visible":false,"contact\_name":"Jake Bartell","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2017-11-08T04:58:01Z","created\_by\_id":360,"debt\_investor":"","decommissioning\_on":null,"desc":"A Domino’s Pizza franchise in the western Sydney suburb of Plumpton has laid claim to the world’s largest commercial Tesla Powerwall 2 battery storage system, after installing 10 of the US company’s 13.5kWh units – and not to store rooftop solar power, but to get around an existing network supply problem.\r\n\r\nAccording to Chris Williams, whose company Natural Solar installed the battery system, the newly established Domino’s Plumpton hit a snag when it discovered its electricity load requirement outweighed the capability of the current network.\r\n\r\nAfter much consultation and consideration, the decision was made to install the 135kWh Powerwall 2 array to avoid what would have been a very expensive grid upgrade. Indeed, the cost of the batteries will be half the the cost of the grid upgrade.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2275,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2275/Dominos-Powerwall2-Installs-copy.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2275/thumb\_Dominos-Powerwall2-Installs-copy.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2275/partner\_Dominos-Powerwall2-Installs-copy.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-33.7531,"longitude":150.8392,"master\_project\_id":null,"name":"Domino's Pizza 135kW / 135kWh Tesla Powerwall","om\_contractor":"","organization":"Strategen Consulting","owner\_1":"Domino's Pizza, Inc.","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://onestepoffthegrid.com.au/battery-powered-pizza-beating-network-squeeze-10-tesla-powerwalls/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Supply Capacity","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"On-Site Power","service\_use\_case\_3":null,"service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":135,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"New South Wales","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-08T04:58:15Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"Tesla","zip":""}},{"project":{"announcement\_on":"2022-10-03","approval\_status":0,"city":"Clayton","commissioning\_on":null,"companion":"On-site PV","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"JBartell@strategen.com","contact\_info\_visible":false,"contact\_name":"Jake Bartell","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2017-11-08T05:08:54Z","created\_by\_id":360,"debt\_investor":"","decommissioning\_on":null,"desc":"The system, which comprises 900kWh of redT flow machines coupled with a 120kW C1-rated lithium battery, will be deployed as an active energy storage infrastructure asset at the University’s new 11,400 m2 Biomedical Learning and Teaching building, which will house state-of-the-art biomedical research laboratories over 4 floors. Coupled with on-site solar PV assets, the system will be used to maximise the university’s utilisation of renewable energy to significantly reduce energy costs for campus buildings. This will generate significant savings for the site and also open up potential new revenue streams, in the form of both contracted and merchant grid services in the future. The system will be used as a ‘flexible platform’ and will become part of the “Monash Microgrid”, in partnership with Monash Energy Materials and Systems Institute (MEMSI). The project aims to integrate distributed renewables on Monash’s campuses to increase reliability and stability within the local grid and in the future, allow for innovative, market based peer-to-peer energy trading.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2276,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-37.9153572,"longitude":145.1340467,"master\_project\_id":null,"name":"Monash University RedT 300kW / 1MWh Hybrid System ","om\_contractor":"","organization":"Strategen Consulting","owner\_1":"Monash University","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.redtenergy.com/blog/hybrid-redt","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Microgrid Capability","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":null,"service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":300,"size\_kwh":3.33333333333333,"size\_kwh\_hours":3,"size\_kwh\_minutes":20.0,"state":"Victoria","status":"Announced","street\_address":"Wellington Rd","systems\_integration":null,"technology\_classification":null,"technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Flow Battery","technology\_type\_l2":"Vanadium Redox Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-08T06:45:32Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"3800"}},{"project":{"announcement\_on":"2022-09-16","approval\_status":0,"city":"Lakeland","commissioning\_on":"2021-12-31","companion":"55 MW Solar Photovoltaic","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"JBartell@strategen.com","contact\_info\_visible":false,"contact\_name":"Jake Bartell","contact\_phone":"","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2017-11-23T00:41:58Z","created\_by\_id":360,"debt\_investor":"","decommissioning\_on":null,"desc":"Lyon announced its next Solar + Battery project, to be built in Lakeland, Queensland. The grid- connected project will include 80MWh Solar PV and a minimum 20MW/ 20MWh battery storage module, making it almost 4 times bigger than Lyon’s first solar and battery venture (also in Lakeland) which was supported by ARENA funding and recently sold by Lyon.","developer":"Lyon Group","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"Private/Third Party Equity","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2277,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-15.8415527,"longitude":144.8494034,"master\_project\_id":null,"name":"Cape York Solar Storage 20MW / 80MWh - Lyon Group","om\_contractor":"","organization":"","owner\_1":"Lyon Group","owner\_2":"","owner\_type":"3","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":100.0,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://dev.essentialdigital.com.au/projects/cape-york/","primary\_reference1":"http://dev.essentialdigital.com.au/solar-projects-announced-in-qld-sa-with-batteries-as-big-as-football-fields/","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Renewables Capacity Firming","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Renewables Energy Time Shift","service\_use\_case\_3":"Resiliency","service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"Transmission","size\_kw":20000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Queensland","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2017-11-23T00:53:36Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"AES","zip":""}},{"project":{"announcement\_on":"2022-05-24","approval\_status":0,"city":"Pfinztal","commissioning\_on":null,"companion":"2 MW Wind Turbine","construction\_on":"2022-05-24","contact\_city":null,"contact\_country":null,"contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"Stefan Tröster","contact\_phone":"+49 721 4640-392","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Germany","created\_at":"2018-01-12T01:50:04Z","created\_by\_id":496,"debt\_investor":"","decommissioning\_on":null,"desc":"The Fraunhofer Institute for Chemical Technology ICT will showcase its newly developed large-scale flow battery, which is under construction in Pfinztal, near Karlsruhe. The flow battery - an advanced long-duration energy storage system - will be able to store and discharge energy up to 20 MWh, improving the technical and economic performance of the research institute’s local power supply and enabling the integration of a 2 MW wind turbine planned for spring 2017.\r\n\r\nRedox-flow battery systems combine the advantages of Li-ion batteries and fuel cells for stationary energy storage. They are very efficient - 75% efficiency in current technical solutions - and their service life is about 5 times longer than that of conventional batteries, with more than 10,000 additional cycles. The liquids used are not flammable, so the systems are also safer to use.","developer":"The Fraunhofer Institute for Chemical Technology (ICT)","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2280,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2280/1464860086564\_rfb-tanks-klein.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2280/thumb\_1464860086564\_rfb-tanks-klein.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2280/partner\_1464860086564\_rfb-tanks-klein.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":48.9780878,"longitude":8.5414949,"master\_project\_id":null,"name":"RedoxWind - The Fraunhofer Institute for Chemical Technology (ICT)","om\_contractor":"","organization":"The Fraunhofer Institute for Chemical Technology ICT","owner\_1":"The Fraunhofer Institute for Chemical Technology (ICT)","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.ict.fraunhofer.de/de/presse\_mediathek/pressemitteilungen/2016/2016-05-24.html","primary\_reference1":"http://eosd.org/en/gsfc2015/day2/Stefan\_Troester\_FraunhoferICT.pdf","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Black Start","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Demand Response","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"On-Site Power","service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":2000,"size\_kwh":10.0,"size\_kwh\_hours":10,"size\_kwh\_minutes":0.0,"state":"Karlsruhe","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-12T01:59:00Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"","zip":"76327"}},{"project":{"announcement\_on":null,"approval\_status":1,"city":"Cypress","commissioning\_on":"2022-01-01","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"guy.frankenfield@dntanks.com","contact\_info\_visible":false,"contact\_name":"Guy Frankenfield","contact\_phone":"972-823-3300","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2018-01-12T05:51:44Z","created\_by\_id":496,"debt\_investor":"","decommissioning\_on":null,"desc":"In 2016, Cypress College embarked on an ambitious project to expand their central plant which provides the cooling for the students, faculty, and staff of this 110 acre campus. As a part of the expansion of the central plant (built by PPC Mechanical Contractors), a new 890,000 gallon chilled water Thermal Energy Storage (TES) tank was designed and built by DN Tanks.\r\n\r\nThe performance criteria for the tank was specified by P2S Engineering and included a useable TES capacity of 10,000 ton-hours and a maximum chilled water flow rate of 2,400 gallons per minute. Integrated into the campus district cooling system, the tank provides cooling for the campus during the peak electric period of time during the afternoon, allowing the chiller equipment to de-energize during this time, which permanently reduces the campus’s electric demand. Utilizing the TES tank, the peak-demand electric load of the campus will be reduced by 1,100 kW’s. Albert Miranda, Facilities Director at Cypress College, estimates that the TES tank will save over $ 190,000 per year in energy costs.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2281,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2281/Cypress-CA-TES-tank-890000-gallons\_slider.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2281/thumb\_Cypress-CA-TES-tank-890000-gallons\_slider.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2281/partner\_Cypress-CA-TES-tank-890000-gallons\_slider.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":33.8280924,"longitude":-118.0252758,"master\_project\_id":null,"name":"Cypress College TES Tank","om\_contractor":"","organization":"DN Tanks","owner\_1":"Cypress College","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.dntanks.com/projects/cypress-college-tes-tank-cypress-ca/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"9200 Valley View St","systems\_integration":null,"technology\_classification":null,"technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-01-17T04:42:23Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"DN Tanks","zip":"90630"}},{"project":{"announcement\_on":"2022-01-12","approval\_status":1,"city":"Universal City","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"guy.frankenfield@dntanks.com","contact\_info\_visible":false,"contact\_name":"Guy Frankenfield","contact\_phone":"972-823-3300","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2018-01-12T06:09:46Z","created\_by\_id":496,"debt\_investor":"","decommissioning\_on":null,"desc":"In 2012, Alamo Colleges contracted with Trane to provide a Thermal Energy Storage (TES) system for their Northeast Lakeview College campus. Trane selected DN Tanks to provide a 1 million gallon TES tank for this project, for the purpose of saving energy costs for Northeast Lakeview College.\r\n\r\nThe TES system was designed to shift the electric load of the chillers and associated cooling equipment from the on-peak periods (daytime), to the off-peak periods (night time). Texas Energy Engineering Services, Inc. (TEESI) specified a stratified chilled water tank with 9,380 ton-hrs of useable TES capacity, and Trane provided the design-build expertise that integrated the TES tank into the existing chilled water district cooling system for the campus. This central chilled water system provides cooling for this 370,000 square foot college campus with a spring 2015 headcount enrollment of 5,700 students.\r\n\r\nPer Brad Bright of Trane, this TES system will allow Alamo Colleges to shift approximately 600kW from the “on-peak” electric period to the “off-peak” electrical period. John Strybos, Associate Vice Chancellor of Facilities at Alamo Colleges, estimates that this TES system will save the college over $114,000 annually. Also, the TES tank provides flexibility for the facilities staff to take the physical plant down for several hours to perform emergency or routine service without interrupting the chilled water district cooling supply to the campus.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2282,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2282/NE-Lakeview\_thumb.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2282/thumb\_NE-Lakeview\_thumb.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2282/partner\_NE-Lakeview\_thumb.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"ERCOT","latitude":29.5457967,"longitude":-98.3231142,"master\_project\_id":null,"name":"Northeast Lakeview College TES Tank","om\_contractor":"","organization":"DN Tanks","owner\_1":"Alamo Colleges","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.dntanks.com/projects/northeast-lakeview-college/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Texas","status":"Operational","street\_address":"1201 Kitty Hawk Road","systems\_integration":null,"technology\_classification":null,"technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-01-17T04:43:14Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"DN Tanks","zip":"78148"}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Dulles","commissioning\_on":"2022-08-01","companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"guy.frankenfield@dntanks.com","contact\_info\_visible":false,"contact\_name":"Guy Frankenfield","contact\_phone":"972-823-3300","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2018-01-12T06:53:30Z","created\_by\_id":496,"debt\_investor":"","decommissioning\_on":null,"desc":"In 2006, a large Internet Service Provider (ISP) located in Dulles, VA selected DN Tanks to build a mission critical Thermal Energy Storage (TES) tank to service their data center. The data center which operates 24 hours each day could not afford the consequences that would result if their chilled water cooling system were to experience downtime. This TES tank, now our third built TES tank for this same ISP, was designed to provide back-up cooling for the central plant in the event that the chillers experience unexpected downtime.\r\n\r\nThe engineer for the project, Dunlap & Partners, designed the revisions to the chilled water system which included the addition of a new TES tank. The tank was specified to be capable of storing enough chilled water equal to the peak cooling load for the facility for a period of two hours. In addition, the chilled water pressure drop through the tank was specified to stay below 3 psi even in the event that the pumps were to require a delivery flow rater of 5,184 gpm which is the maximum flow rate to the building.\r\n\r\nPoole & Kent, the mechanical contractor, provided the new chilled water piping, pumps, and valves in addition to overseeing the installation of this TES tank. DN Tanks together with Poole & Kent worked closely with the owner and engineers in ensuring that the TES system was constructed within the agreed upon schedule, and commissioned expeditiously so that the data center would be protected with this reservoir of chilled water.\r\n\r\nIn August of 2007, representatives of the owner, the mechanical contractor, the engineer, and DN Tanks commissioned the TES system. The commissioning process included shutting down all chillers during the middle of a weekday of the data center operation. Immediately upon shutting down the chillers, the new TES system was energized and chilled water from the TES tank became the sole source of cooling for the facility. The system remained in this mode for 1 hour and 40 minutes, while the TES tank operated flawlessly.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2283,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2283/AOL-Dulles-VA.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2283/thumb\_AOL-Dulles-VA.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2283/partner\_AOL-Dulles-VA.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"PJM","latitude":38.9624899,"longitude":-77.4380485,"master\_project\_id":null,"name":"Dulles TES Tank for Internet Service Provider","om\_contractor":"","organization":"DN Tanks","owner\_1":"Unknown (Internet Service Provider)","owner\_2":"","owner\_type":"1","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://www.dntanks.com/projects/tes-tank-for-internet-service-provider-in-dulles-va/","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Resiliency","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":null,"service\_use\_case\_3":null,"service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":0,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"Virginia","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-01-17T02:54:39Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"DN Tanks","zip":""}},{"project":{"announcement\_on":"2022-01-12","approval\_status":0,"city":"Walnut","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"guy.frankenfield@dntanks.com","contact\_info\_visible":false,"contact\_name":"Guy Frankenfield","contact\_phone":"972-823-3300","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2018-01-12T07:05:05Z","created\_by\_id":496,"debt\_investor":"","decommissioning\_on":null,"desc":"In 2015, Mt. San Antonio College (SAC) needed to expand their central plant to handle the cooling of the additional buildings, and occupants. As a part of the expansion of the central plant, a 2.0 million gallon chilled water Thermal Energy Storage (TES) tank was designed into the district cooling system by P2S Engineering, Inc.\r\n\r\nThe tank was designed and built for a useable TES capacity of 20,000 ton-hours and a maximum chilled water flow rate of 5,000 gallons per minute. The tank was designed to provide cooling for the campus during the peak electric period of time during the afternoon, allowing the chiller equipment to de-energize during this time, and permanently reduce the electric demand. Utilizing the TES tank, the campus will permanently reduce the peak electric demand.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2284,"image\_1":{"url":"../../images/2284/Walnut-CA-preparing-for-roof-pour-thermal-energy-storage-tank\_slider3.gif","thumb":{"url":"../../images/2284/thumb\_Walnut-CA-preparing-for-roof-pour-thermal-energy-storage-tank\_slider3.gif"},"partner":{"url":"../../images/2284/partner\_Walnut-CA-preparing-for-roof-pour-thermal-energy-storage-tank\_slider3.gif"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.0451762,"longitude":-117.846611,"master\_project\_id":null,"name":"Mt. 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The Ice Bear system is an intelligent distributed energy storage solution that works in conjunction with commercial direct-expansion (DX) air-conditioning systems, specifically the refrigerant-based, 4-20-ton packaged rooftop systems common to most small to mid-sized commercial buildings. The system stores energy at night, when electricity generation is cleaner, more efficient and less expensive, and delivers that energy during the peak of the day to provide cooling to the building. Daytime energy demand from air conditioning – typically 40-50% of a building’s electricity use during peak daytime hours – can be reduced significantly. In kilowatts, each Ice Bear delivers an average reduction of 12 kW of source equivalent peak demand for a minimum of 6 hours daily, shifting 72 kW-hours of on-peak energy to off-peak hours. Ice Bear units are typically owned by utilities and installed at distributed locations behind the customer meter on commercial and industrial sites. 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When aggregated and deployed at scale, a typical utility deployment will shift the operation of thousands of commercial AC condensing units from on-peak periods to off-peak periods, reducing electric system demand, improving electric system load factor, reducing electric system costs, and improving overall electric system efficiency and power quality.","developer":"Ice Energy","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2297,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2297/Ice\_Energy\_Ice\_Bear.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2297/thumb\_Ice\_Energy\_Ice\_Bear.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2297/partner\_Ice\_Energy\_Ice\_Bear.jpg"}},"integrator\_company":"Ice Energy","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.1753113,"longitude":-118.3123988,"master\_project\_id":null,"name":"Field Service (PW Yard) #2 - Ice Energy","om\_contractor":"Ice Energy","organization":"Ice Energy","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.ice-energy.com","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":null,"service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":8,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"124 S. 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David Paul & Associates #2 - Ice Energy","om\_contractor":"Ice Energy","organization":"Ice Energy","owner\_1":"Confidential","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.ice-energy.com","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":null,"service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":8,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"3100 Thornton Ave.","systems\_integration":null,"technology\_classification":null,"technology\_type":"Ice Thermal Storage","technology\_type\_l1":"Ice Thermal Storage","technology\_type\_l2":"Ice Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-01-17T05:13:17Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Burbank Water & Power","utility\_type":"Public Owned","vendor\_company":"Ice Energy","zip":""}},{"project":{"announcement\_on":"2022-03-02","approval\_status":0,"city":"Burbank","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"anunn@ice-energy.com","contact\_info\_visible":false,"contact\_name":"Andrew Nunn","contact\_phone":"(877) 542-3236","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2018-01-17T05:50:13Z","created\_by\_id":496,"debt\_investor":"","decommissioning\_on":null,"desc":"Ice Energy’s flagship Ice Bear system enables a powerful change in how – and more importantly when – energy is consumed for air conditioning. 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This pilot unit was used to evaluate the ACE application. A vacant lot adjacent to the newly built Grandview substation in northwest Glendale, California, U.S., was chosen for the location of the BESS. In March 2016, GWP executed a turnkey equipment supply agreement, whereby Skylar agreed to engineer, procure, construct and commission the BESS.\r\n\r\nThe main components of the BESS are as follows:\r\n\r\n• 2-MW BESS, supplied by Saft\r\n\r\n• 2-MVA PCS, supplied by ABB\r\n\r\n• 2-MVA, 69-kV, 373-V power transformer, supplied by Virginia Transformer\r\n\r\n• 69-kV gas-insulated substation breaker, supplied by GE\r\n\r\n• A new 69-kV transmission line connecting the BESS to the Kellogg switching station, completed by GWP.","developer":"","electronics\_provider":"ABB","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2301,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2301/GLN\_25-figs123\_final.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2301/thumb\_GLN\_25-figs123\_final.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2301/partner\_GLN\_25-figs123\_final.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"CAISO","latitude":34.1622436,"longitude":-118.2831876,"master\_project\_id":null,"name":"Glendale Water and Power/Skylar Energy BESS Pilot ","om\_contractor":"","organization":"Glendale Water & Power","owner\_1":"Los Angeles Department of Water and Power","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.glendaleca.gov/government/departments/glendale-water-and-power/projects/current/battery-energy-storage-system-ess","primary\_reference1":"http://www.tdworld.com/distribution/glendale-pilots-battery-energy-storage","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Renewables Capacity Firming","service\_use\_case\_3":"Transmission Congestion Relief","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":2000,"size\_kwh":0.483333333333333,"size\_kwh\_hours":0,"size\_kwh\_minutes":29.0,"state":"California","status":"Operational","street\_address":"6135 San Fernando Road","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-01-19T03:02:58Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Los Angeles Department of Water and Power","utility\_type":"Public Owned","vendor\_company":"Saft","zip":""}},{"project":{"announcement\_on":"2022-08-01","approval\_status":1,"city":"Kern County","commissioning\_on":null,"companion":"Beacon Solar Farm, Wind Turbines","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"KTY Engineering ","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2018-01-20T07:00:40Z","created\_by\_id":496,"debt\_investor":"","decommissioning\_on":null,"desc":"Los Angeles Department of Water and Power (LADWP) has selected Doosan GridTech and its partner, KTY Engineering, to deliver LADWP’s first battery energy storage system (BESS) with a capacity of 20 MW at its Beacon Solar Plant in Kern County, California.\r\n\r\nThe Beacon Solar Plant was selected as the site for the BESS due to the its high concentration of solar photovoltaic arrays. The BESS will provide multiple, coordinated functions to LADWP that will help efficiently integrate these solar resources into the grid, minimize LADWP’s use of gas‐fired generating units for compliance with the NERC – BAL 003-1 requirements, and assist with the short-term mitigation of the Aliso Canyon natural gas curtailment.\r\n\r\nDoosan’s winning modular turnkey design includes thirteen transformer/PCS/lithium-ion battery strings, redundant auxiliary power systems, and 100% redundant HVAC systems. The design also enables preventative maintenance, which is necessary in the harsh Mojave Desert environment, to occur without sacrificing availability.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2302,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":35.4937274,"longitude":-118.8596804,"master\_project\_id":null,"name":"Beacon Battery Storage","om\_contractor":"","organization":"N/A","owner\_1":"Los Angeles Department of Water and Power","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://www.ladwpnews.com/ladwp-steps-up-utility-scale-battery-storage-to-ensure-a-more-reliable-power-grid-2/","primary\_reference1":"https://www.energy-storage.news/news/ladwp-selects-doosan-gridtech-kty-engineering-for-20mw-energy-storage-syste","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Load Following (Tertiary Balancing)","service\_use\_case\_4":"Renewables Capacity Firming","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":20000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"California","status":"Under Construction","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-06T17:44:17Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Los Angeles Department of Water and Power","utility\_type":"Public Owned","vendor\_company":"Doosan GridTech","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Los Angeles","commissioning\_on":"2022-10-01","companion":"Solar PV","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2018-01-21T06:08:31Z","created\_by\_id":496,"debt\_investor":"","decommissioning\_on":null,"desc":"LADWP, in collaboration with the Mayor’s Office, the Los Angeles Fire Department, the\r\nLos Angeles Department of Building and Safety, and the Los Angeles Department of\r\nGeneral Services, is championing energy storage pilot projects near the Aliso Canyon\r\ncommunities, including a 12-kilowatt (kW) system at Fire Station 28 in the Porter Ranch\r\narea. The systems will demonstrate demand response, integration with a solar PV\r\nsystem, electricity demand reduction during peak-hours, and emergency backup in the\r\nevent of an outage.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2303,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.0522342,"longitude":-118.2436849,"master\_project\_id":null,"name":"Fire Station 28 Solar Plus Storage","om\_contractor":"","organization":"N/A","owner\_1":"Los Angeles Department of Water and Power","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"http://docketpublic.energy.ca.gov/PublicDocuments/17-IEPR-12/TN219953\_20170628T091216\_\_LADWP’s\_Distributed\_Energy\_Resource\_Planning\_\_Programs.pdf","primary\_reference1":"http://clkrep.lacity.org/onlinedocs/2017/17-0115\_rpt\_DWP\_06-23-2017.pdf","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Demand Response","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Supply Capacity","service\_use\_case\_3":"Renewables Energy Time Shift","service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":12,"size\_kwh":3.25,"size\_kwh\_hours":3,"size\_kwh\_minutes":15.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-28T00:27:33Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Los Angeles Department of Water and Power","utility\_type":"Public Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-01-22","approval\_status":0,"city":"Los Angeles","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"N/A","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"N/A","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2018-01-22T05:39:59Z","created\_by\_id":496,"debt\_investor":"","decommissioning\_on":null,"desc":"The Thermal Energy Storage (TES) system has been providing the campus with roughly $600,000 in annual savings since it was placed in operation in May 2003. The main feature of the system is a 5,000,000 gallon water tank that serves as the foundation for LaKretz Hall which is the campus's first U.S. Green Buildings Council LEED Silver certified building and the home of UCLA's Institute of the Environment. The TES system allows the campus to make and store excess chilled water at night when energy prices are low and then use the stored cooling to air condition the campus during the day when energy prices are higher.\r\n\r\nOperation of the TES system and the campus air conditioning system has also been enhanced by construction of a new air conditioning water chiller facility near Boelter Hall and the California Nano Science Institute (CNSI). Once the location of an older and less inefficient chilled water facility using CFC refrigerants, the new facility has 25% larger capacity, much more energy efficient machines and does not use CFCs. In fact, the main air conditioning system that serves nearly the entire campus is now free of CFCs. In addition to adding sorely needed capacity to the campus air conditioning system, the new chilled water facility also increases the efficiency and capacity of the TES, contributing further energy savings. The new system has been in full operation since July of 2006.\r\n\r\nUCLA is enhancing the TES system by installing variable speed drive controls for the TES pumps which will make the TES system even more energy efficient.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2304,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":34.0522342,"longitude":-118.2436849,"master\_project\_id":null,"name":"UCLA Thermal Energy Storage","om\_contractor":"","organization":"N/A","owner\_1":"University of California Los Angeles","owner\_2":"","owner\_type":"1","ownership\_model":"Customer-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"N/A","primary\_reference":"https://www.facilities.ucla.edu/services/energy-management/energy-conservation#Thermal%20Energy","primary\_reference1":"http://www.energy.ca.gov/assessments/ab2514\_reports/Los\_Angeles\_Dept/Los\_Angeles\_Dept\_of\_Water\_and\_Power\_Energy\_Storage\_Development\_Plan.pdf","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Bill Management","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Energy Time Shift","service\_use\_case\_3":null,"service\_use\_case\_4":null,"service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":4668,"size\_kwh":0.0,"size\_kwh\_hours":0,"size\_kwh\_minutes":0.0,"state":"California","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Chilled Water Thermal Storage","technology\_type\_l1":"Chilled Water Thermal Storage","technology\_type\_l2":"Chilled Water Thermal Storage","technology\_type\_l3":"Thermal Storage","updated\_at":"2018-01-22T05:40:09Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Los Angeles Department of Water and Power","utility\_type":"Public Owned","vendor\_company":"","zip":""}},{"project":{"announcement\_on":"2022-04-19","approval\_status":0,"city":"Jardelund","commissioning\_on":null,"companion":"","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"JBartell@strategen.com","contact\_info\_visible":false,"contact\_name":"Jake","contact\_phone":"4802484634","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2018-02-03T00:29:39Z","created\_by\_id":360,"debt\_investor":"","decommissioning\_on":null,"desc":"Project ‘EnspireME’ as it will be known, will allow the local community to optimise its growing use of wind and solar energy by supplying the reserve power capacity needed to balance the grid. Construction will begin this summer, at a site next to a substation. The proximity to the substation will also allow the storage system to reduce efficiency losses at the substation itself. The Schleswig-Holstein region is a hotbed of wind power, with vast generation facilities that are interconnected to the rest of Germany, making it an ideal location for the project.","developer":"Eneco","electronics\_provider":"NEC","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":null,"hidden":false,"id":2305,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"NEC","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":null,"longitude":null,"master\_project\_id":null,"name":"EnspireME 48MW / 50 MWh","om\_contractor":"","organization":"Strategen","owner\_1":"Eneco","owner\_2":"Mitsubishi","owner\_type":"3","ownership\_model":"Customer-Owned","ownership\_percentage\_1":50.0,"ownership\_percentage\_2":50.0,"performance":"","primary\_reference":"http://www.nec.com/en/press/201704/global\_20170419\_02.html","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Electric Energy Time Shift","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Frequency Regulation","service\_use\_case\_3":"Renewables Capacity Firming","service\_use\_case\_4":"Renewables Energy Time Shift","service\_use\_case\_5":null,"service\_use\_case\_6":null,"service\_use\_case\_7":null,"service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":50000,"size\_kwh":1.05,"size\_kwh\_hours":1,"size\_kwh\_minutes":3.0,"state":"Schleswig-Holstein","status":"Announced","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-06T17:43:08Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"","utility\_type":"","vendor\_company":"NEC","zip":"24994"}},{"project":{"announcement\_on":"2022-11-01","approval\_status":1,"city":"Zaoyang","commissioning\_on":null,"companion":"Solar PV","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"info@spartonres.ca; jimstover@punengenergy.com; charlesge@punengenergy.com","contact\_info\_visible":false,"contact\_name":"Lee Barker; Jim Stover; Charles Ge","contact\_phone":"647-344-7734 or 416-716-5762; +1-604-648-3900; +86 186 7010 7777 ","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"China","created\_at":"2018-02-11T08:13:10Z","created\_by\_id":496,"debt\_investor":"","decommissioning\_on":null,"desc":"Pu Neng, the leading provider of vanadium flow battery technology in the world, has been awarded a contract for a 3-megawatt (MW) 12-megawatt-hour (MWh) VRB as Phase 1 of the Hubei Zaoyang 10MW 40MWh Storage Integration Demonstration Project. This first phase will be installed in Zaoyang, Hubei to integrate a large solar photovoltaic system into the grid.\r\n\r\nInstallation of the VRB system will commence in November 2017. When Phase 1 is completed in early 2018, Pu Neng’s VRB will be the largest flow battery installed in China. As part of the initial agreement, Pu Neng and Hubei Vanadium will jointly develop a vanadium electrolyte supply from local vanadium sources, helping revitalize the local industrial base to meet future demand for energy storage.\r\n\r\nFlow batteries store energy in liquid electrolyte, which is held in tanks external to the cell stacks that contain the cathode (positive) and anode (negative) sides of the battery. When charging or discharging the battery, electrons are added into or drawn out of the electrolyte as it circulates across membranes inside the stacks. Unlike other types of batteries, vanadium flow batteries use the same electrolyte solution on both the positive and negative side of the battery, yielding a nearly infinitely repeatable electrochemical process.","developer":"Pu Neng Energy","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2306,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":32.128818,"longitude":112.771959,"master\_project\_id":null,"name":"3MW 12MWh VRB (Hubei Zaoyang Storage Integration Demonstration Project Phase 1) - Pu Neng Energy","om\_contractor":"","organization":"Sparton Resources; Pu Neng Energy; Pu Neng Energy","owner\_1":"N/A","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://www.spartonres.ca/news/press-release-november-2-2017/","primary\_reference1":"https://globenewswire.com/news-release/2017/11/01/1172376/0/en/Pu-Neng-Wins-Contract-for-the-Largest-Vanadium-Flow-Battery-in-China-as-the-China-National-Development-and-Reform-Commission-Initiates-a-Major-Push-for-Energy-Storage-in-Support-of.html","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Distribution upgrade due to solar","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Transmission upgrades due to solar","service\_use\_case\_3":"","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":3000,"size\_kwh":4.0,"size\_kwh\_hours":4,"size\_kwh\_minutes":0.0,"state":"Hubei","status":"Under Construction","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Vanadium Redox Flow Battery","technology\_type\_l1":"Flow Battery","technology\_type\_l2":"Vanadium Redox Flow Battery","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-15T18:18:40Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Pu Neng Energy","zip":""}},{"project":{"announcement\_on":"2022-02-08","approval\_status":1,"city":"Kalibarri","commissioning\_on":null,"companion":"Solar PV, Wind","construction\_on":"2022-11-01","contact\_city":null,"contact\_country":null,"contact\_email":"enquiries@carnegiece.com ","contact\_info\_visible":false,"contact\_name":"Dr. Michael Ottaviano","contact\_phone":"+61 8 6168 8400 ","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"Energy Made Clean (EMC)/LendLease Services","contractor\_2":"","contractor\_3":"","cost\_CAPEX":6800000.0,"cost\_OPEX":null,"country":"Australia","created\_at":"2018-02-15T19:39:39Z","created\_by\_id":496,"debt\_investor":"","decommissioning\_on":null,"desc":"Carnegie Clean Energy Limited is pleased to announce that its 100% owned subsidiary, leading Australian battery and solar engineering company, Energy Made Clean, and its Joint Venture partner, Lendlease Services have been awarded a $6.8 million contract for the Supply, Delivery and Installation of a 5MW Battery Energy Storage System (BESS) facility located in Kalbarri, 500km north of Perth for Western Power. The BESS will have a 4.5MWh energy capacity and a minimum 2MWh that is accessible at any time for reliability back-up services.\r\n\r\nWith a capacity of a 5MW, and overload capacity to 10MW, the BESS will form part of the largest microgrid in Western Australia. The system will be supported by a trailing Operations and Maintenance (O&M) contract, serviced by the EMC Lendlease JV’s dedicated maintenance team. ","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2307,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2307/kalbarri-map-poster.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2307/thumb\_kalbarri-map-poster.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2307/partner\_kalbarri-map-poster.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-27.720376,"longitude":114.162514,"master\_project\_id":null,"name":"Kalbarri Microgrid 5MW Battery Energy Storage System (BESS) ","om\_contractor":"Energy Made Clean (EMC)/LendLease Services","organization":"Carnegie Clean Energy Limited ","owner\_1":"Western Power","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"https://s3-ap-southeast-2.amazonaws.com/website-sydney-1/media/2018/02/08101642/18-02-08-Kalbarri-Microgrid.pdf","primary\_reference1":"https://westernpower.com.au/energy-solutions/projects-and-trials/kalbarri-microgrid/","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Frequency Regulation","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Microgrid Capability","service\_use\_case\_3":"Voltage Support","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":5000,"size\_kwh":0.4,"size\_kwh\_hours":0,"size\_kwh\_minutes":24.0,"state":"Western Australia","status":"Announced","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-15T19:40:37Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"Western Power","utility\_type":"State/Municipal Owned","vendor\_company":"Energy Made Clean (EMC)/LendLease Services","zip":""}},{"project":{"announcement\_on":"2022-02-06","approval\_status":1,"city":"Onslow","commissioning\_on":null,"companion":"5.25 MW Gas Powered Power Plant","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"onlineenquiry@magellanpower.com.au","contact\_info\_visible":false,"contact\_name":"N/A","contact\_phone":"+61 (08) 9434 6621","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"Australia","created\_at":"2018-02-25T04:42:44Z","created\_by\_id":496,"debt\_investor":"","decommissioning\_on":null,"desc":"Magellan Power has won a contract to supply a Utility Scale Battery Storage System to one of Australia’s largest solar and storage based microgrid projects, servicing the Western Australian town of Onslow. \r\n\r\nMagellan signed the contract last year to supply state of the art 1MW/500kWh battery storage systems to be delivered in two 20 foot containers. The completed battery storage will be used for Spinning Reserve and Black Start applications.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2308,"image\_1":{"url":"../../ese-prod/uploads/project/image\_1/2308/NewsletterMontage1.jpg","thumb":{"url":"../../ese-prod/uploads/project/image\_1/2308/thumb\_NewsletterMontage1.jpg"},"partner":{"url":"../../ese-prod/uploads/project/image\_1/2308/partner\_NewsletterMontage1.jpg"}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":-21.6401732,"longitude":115.1123067,"master\_project\_id":null,"name":"Onslow Power Project (Solar + Storage Microgrid) ","om\_contractor":"","organization":"Magellan Power","owner\_1":"N/A","owner\_2":"","owner\_type":"1","ownership\_model":"Utility-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"","primary\_reference":"http://magellanpower.com.au/About-Us/News/Australian-Solar-Storage-Microgrid-Project-Uses-Ma","primary\_reference1":"","projected\_lifetime":null,"rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Black Start","service\_use\_case\_10":"","service\_use\_case\_11":"","service\_use\_case\_12":"","service\_use\_case\_2":"Electric Supply Reserve Capacity - Spinning","service\_use\_case\_3":"Microgrid Capability","service\_use\_case\_4":"","service\_use\_case\_5":"","service\_use\_case\_6":"","service\_use\_case\_7":"","service\_use\_case\_8":"","service\_use\_case\_9":"","siting":"","size\_kw":1000,"size\_kwh":0.5,"size\_kwh\_hours":0,"size\_kwh\_minutes":30.0,"state":"Western Australia","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium-ion Battery","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Electro-chemical","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-28T00:27:28Z","updated\_at\_by\_admin":null,"updated\_by":496,"updated\_by\_email":"dfalk@strategen.com","utility":"","utility\_type":"","vendor\_company":"Magellan Power","zip":""}},{"project":{"announcement\_on":null,"approval\_status":0,"city":"Tucson","commissioning\_on":"2022-06-01","companion":"Prairie Fire, 5 MW A.C. Solar Array","construction\_on":null,"contact\_city":null,"contact\_country":null,"contact\_email":"ccouture@tep.com","contact\_info\_visible":false,"contact\_name":"Callyn Couture","contact\_phone":"6026163523","contact\_state":null,"contact\_street\_address":null,"contact\_zip":null,"contractor\_1":"","contractor\_2":"","contractor\_3":"","cost\_CAPEX":null,"cost\_OPEX":null,"country":"United States","created\_at":"2018-02-27T22:14:17Z","created\_by\_id":499,"debt\_investor":"","decommissioning\_on":null,"desc":"IHI constructed a 1000 kW lithium nickel-manganese-cobalt energy storage system in order to test IHI's ESWare® planning and control software. TEP will additionally be utilizing this battery to develop efficient control strategies for energy storage systems and furthermore identify optimal installation locations for the implementation of future energy storage systems.","developer":"","electronics\_provider":"","energy\_management\_software\_provider":"","funding\_amount\_1":null,"funding\_amount\_2":null,"funding\_amount\_3":null,"funding\_source\_1":"","funding\_source\_2":"","funding\_source\_3":"","funding\_source\_details\_1":"","funding\_source\_details\_2":"","funding\_source\_details\_3":"","gmaps":true,"hidden":false,"id":2309,"image\_1":{"url":null,"thumb":{"url":null},"partner":{"url":null}},"integrator\_company":"","integrator\_fax":null,"is\_multi\_system":"No","is\_sub\_project":null,"iso":"N/A","latitude":32.2217429,"longitude":-110.926479,"master\_project\_id":null,"name":"IHI Prairie Fire","om\_contractor":"","organization":"Tucson Electric Power","owner\_1":"Tucson Electric Power","owner\_2":"","owner\_type":"3","ownership\_model":"Third-Party-Owned","ownership\_percentage\_1":null,"ownership\_percentage\_2":null,"performance":"Performance Metrics Not Available","primary\_reference":"https://www.tep.com/news/tep-enhances-service-reliability-with-new-developing-energy-storage-systems/","primary\_reference1":"","projected\_lifetime":"10.0","rdd\_status":null,"research\_desc":null,"research\_institution":"","research\_institution\_link":null,"service\_use\_case\_1":"Demand Response","service\_use\_case\_10":null,"service\_use\_case\_11":null,"service\_use\_case\_12":null,"service\_use\_case\_2":"Electric Bill Management","service\_use\_case\_3":"Electric Bill Management with Renewables","service\_use\_case\_4":"Ramping ","service\_use\_case\_5":"Renewables Capacity Firming","service\_use\_case\_6":"Resiliency","service\_use\_case\_7":"Transmission upgrades due to solar","service\_use\_case\_8":null,"service\_use\_case\_9":null,"siting":"","size\_kw":1000,"size\_kwh":1.0,"size\_kwh\_hours":1,"size\_kwh\_minutes":0.0,"state":"Arizona","status":"Operational","street\_address":"","systems\_integration":null,"technology\_classification":null,"technology\_type":"Lithium Nickel-Manganese-Cobalt","technology\_type\_l1":"Lithium-ion Battery","technology\_type\_l2":"Lithium Nickel-Manganese-Cobalt","technology\_type\_l3":"Electro-chemical","updated\_at":"2018-02-28T00:28:05Z","updated\_at\_by\_admin":null,"updated\_by":null,"updated\_by\_email":null,"utility":"Tucson Electric Power","utility\_type":"","vendor\_company":"","zip":""}}]) , |
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