DNSP: distribution network service provider

Australia dataset:

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| Dataset/source | Location: | Sampling time | Data length | No. of samples | Measurement | Data quality | Remark and future work/conclusion (in red) | Data Accessibility |
| Original Zone Substation Load Data  (NEAR Program) | NSW: Ausgrid, Endeavour Energy  VIC: CitiPower and Powercor, Jemena, United Energy  ACT: ActewAGL  SA: SA Power Networks | 15 mins  or  30 mins | Normally  > 10 years | No of substations depends on DNSP | Active power at substation level,  some may include reactive power | High data quality (DNSP)  Missing dataset for NT, Qld and Tas | Request data from DNSP of the missing states at [Australia Energy Regulator website](https://www.aer.gov.au/networks-pipelines/service-providers-assets?f%5B0%5D=field_accc_aer_sector%3A4&f%5B1%5D=field_accc_aer_region%3A17&f%5B2%5D=field_accc_aer_region%3A20&f%5B3%5D=field_accc_aer_region%3A16) | Immediate download |
| Standardised Zone Substation Gross Solar PV Generation  (NEAR Program) | Zone of DNSP from all states | 1 hour | 4~5 years | No of substations depends on DNSP | Estimated PV generation power in inter-quartile range at substation level | High data quality (CSIRO)  But unknown fields and processing method | Contact CSIRO staff for the methodology of estimation of PV at base station level and clarification of fields in csv file | Immediate download |
| AEMO | Victoria, NSW, ACT, SA, QLD and TAS | 30 mins | 2002 onward | 13 Net System Load Profile (NSLP)  , 8 Controlled Load  Profile (CLP) | Aggregated active power flow recorded by DNSPs | High data quality (AEMO and DNSP) |  | Immediate download |
| Australia PV institute | 53 sites across Australia | 1 hour | 1.5- 6 years | 53 sites | PV generation power aggregated at a site | Unknown data quality, a lot of missing rows |  | Download with additional processing |
| PVOutput | Individual customers across Australia | 5 mins | Varies, normally 3 ~ 8 years | ~5500 customers | Active Power | High data quality, well tabulated table and visualisation for data |  | Contact someone for disclosure |
| Ausgrid Solar home electricity data | NSW region, detail please see Figure 1 of the link in remark column | 30 mins | 3 years | 300 customers | Active Power of general consumption, controlled load and PV generation | High data quality (DNSP), also have samples selected from a pool | 300 customers were selected from a pool of 15000 with electricity consumption and PV generation of top and bottom 10% customers excluded. Details please see section 2 of [this article](https://www.tandfonline.com/eprint/J5SazIBS5UZifbuzKYgV/full).  Load and PV generation profiles have been studied in detail already | Immediate download |
| Literature: Spatio-temporal modelling of electric vehicle charging demand and impacts on peak household electrical load | Victoria | 1-hour grid profile  (simulated) | Simulated 365 days x 24 hours  in Victoria | Simulation of spatial units with 250 dwellings. | House’s Load profiles (active power) with EVs charging/discharging pattern | High data quality (CSIRO) | *-EV uptake:* data from [CSIRO literature](https://www.researchgate.net/publication/283539744_Spatial_Modelling_of_Electric_Vehicle_Uptake_and_Electricity_Grid_Impacts_in_Australia), 3-month interval  *-EV travel:* [VISTA](https://transport.vic.gov.au/about/data-and-research/vista/vista-data-and-publications) and VicRoad, 1-hour interval  *-Household energy and power:* simulation of weather and calculation of cooling and heating load from a commercial engine, 1-hour interval  *-EV charging and discharging:* data=EV travel model, assumed charging at home, 1-hour interval  Specific Study for EVs, read in detail and contact Andrew Higgins (CSIRO) if needed | Contact someone for disclosure |
| Smart-Grid Smart-City | Ausgrid Zone | 30 mins | 1~2 years | 78720 customers | Active Power of general consumption, controlled load and PV generation | High data quality (coop by Australia government + Ausgrid) | Details of households, e.g. usage of gas heating, air-conditioning and clothes dryers, are found for certain customers.  One of the few load/PV profile in Australia. Can be used for correlation study of usage behaviour and electricity consumption | Immediate download |
| Reward  Based Tariff (RBT) | Energex  and Ergon Zone | 30 min | 2 years | 504 customers | Avg. Power  Avg. Power  (controlled load)  PV average power | High (DNSP) | Data has been obtained by CSIRO before in [this literature (p.18 table 2)](https://data.csiro.au/dap/SupportingAttachment?collectionId=15331&fileId=916).  The RBT scheme has use tariff to facilitate lower peak consumption, load profile data may be biased.  Contact CSIRO/ the two DNSP for raw data | Contact someone for disclosure |
| Residential Building Energy Efficiency Study | Melbourne  Brisbane and Adelaide | 30 mins | 9 months  (209 customers)  >5 years  (163 customers) | 209 houses  (9-month study)  163 houses  (5-year study) | 8 different types of consumption/generation  e.g. air-conditioning, oven, solar generation, … | High data Quality (CSIRO) | [Study of 209 houses](https://www.energy.gov.au/sites/default/files/evaluation-5-star-energy-efficiency-standard-residential-buildings-report-2013.pdf) (June 2012 to February 2013)  [Study of 163 houses](https://ahd.csiro.au/other-data/typical-house-energy-use/) (2013-2017)  Specific data obtained by CSIRO, contact author of [the study](https://www.energy.gov.au/sites/default/files/evaluation-5-star-energy-efficiency-standard-residential-buildings-report-2013.pdf) for data of metering | Contact someone for disclosure |
| Australian Low Energy Houses (LEH) | Lochiel Park(LP) Green Village in Adelaide, South Australia | 1 min | 1 year | 60 houses | Electricity consumption | High data Quality (University of South Australia) with strict selection of houses and installation of monitoring system | [Study done by University of South Australia](https://www.sciencedirect.com/science/article/pii/S1876610214034018)  Specific data for LEH in LP Green Village in Adelaide. Contact authors of the study for raw data | Contact someone for disclosure |
| Common Property Loads in Apartment Buildings | Sydney | 15 mins  or  30 mins | 1~ 2 years | 25 apartments | common property (CP) loads such as lighting, lifts in apartments | High data quality (UNSW), with selection of apartment load profile on basis of availability of interval data | [Study is conducted by UNSW](https://energyconsumersaustralia.worldsecuresystems.com/grants/813/AP%20841%20-%20PV%20and%20Demand.pdf) which acquires CP loads data of apartments.  Table 1 of the study summarise the characteristic of data of each building. specific data for CP loads. Contact authors of the UNSW study if needed | Contact someone for disclosure |

Other Countries’ dataset:

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| Dataset | Location: | Sampling time | Data length | No. of samples | Measurement | Data quality | Remark and future work | Data Accessibility |
| MAISY | US | 15 mins | unknown | > 7 million (residential)  > 250000 (commercial) | Active Power | Unknown data quality, but detail documentation of load profile description is shown. | 0.5s – 5mins kW Profile for project-based customer.  Contact the company for free example of data/trial of built-in visualisation tool, and validation of record of data | Payment required |
| [UK Power Networks Zone](https://data.london.gov.uk/dataset/photovoltaic--pv--solar-panel-energy-generation-data) | UK Power Networks Zone (includes London, Cambridge, Brighton and Dover) | 1 min or  10 mins or  1 hour | 3-4 months for 1/10mins data  1 year for hourly data | 20 substations  10 premises (commercial likely) | Active/Reactive Power, THD, voltage and current. | Very High data quality (UK DNSP, cleaned data and detail documentation of variable) | 1-min and 10-min data are available for customers, feeders and network endpoints from mid-June 2014 to early September 2014.  Hourly data is available for period of roughly a year from October 2013 to October 2014.  Weather for the period of recording data is also provided.  Detail data and well documented. | Immediate download |
| [Public light profile](https://www.appalachianpower.com/account/service/choice/csp/LoadProfiles.aspx)  [From Appalachian Power](https://www.appalachianpower.com/account/service/choice/csp/LoadProfiles.aspx), subsidiary of American Electric Power | US | 1 hour | 1 year (2016) | Unclear | Active power | Data Quality unknown (DNSP of US but lack of documentation of csv content) | Unit and No of sample involved is unclear.  Australia public light use type-7 metering which is unmetered installation, see [p.12 of document](https://www.aer.gov.au/system/files/Discussion%20paper%20-%20Matters%20relevant%20to%20the%20framework%20and%20approach%20-%20NSW%20DNSPs%202014-19%20-%20classification%20of%20types%205-7%20metering%20services.pdf).  Type and power rating of public light in Geelong is available at [data.gov.au](https://data.gov.au/dataset/ds-dga-13fe3bbc-c4b6-4427-adb1-49e8060fc4a0/details?q=public%20light).  The datasheet of some low-energy usage utility equipment, e.g. public lightning, CCTV can be found in [AEMO website](https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/market-operations/retail-and-metering/metrology-procedures-and-unmetered-loads/update-to-nem-load-table-unmetered-loads-current-proposals).  It is expected that load data of utility service using meter type 7 is hard to obtain. Consider contact Australia government for the ‘scarce’ data/ conduct project in future involve installation of other meter type | Immediate download |

Other useful dataset

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| Dataset | Location: | Sampling time | Data length | No. of samples | Measurement | Data Quality | Remark and future work | Data Accessibility |
| Small generation unit (SGU) installations | Across Australia | monthly | 2 years  (Jan 2019 – Nov 2020) | All postcodes across Australia | small-scale PV installations by month and postcode | High data Quality (Australia Clean energy regulator) | Study of trend of PV installation, maybe useful for other CSIRO staff. | Immediate download |
| One-minute Solar irradiance | Across Australia | One-minute  (not real processing) | Since 1997 | 19 observatory stations | Solar irradiance  (avg,min,max,std,…) | High data Quality (Australia Bureau of Meteorology) | Contact the bureau to know how the 1-minute data is processed, they mention that the data is not real-time measurement | Immediate download |