



NREL Developer Network

The National Renewable Energy Laboratory's Developer Network (<http://developer.nrel.gov>) helps developers access and use energy data via Web services, including renewable energy and alternative fuel data.

- Free to use, one-time sign-up to get an API key, and you are ready to go for all NREL APIs. Get an API key here: <https://developer.nrel.gov/signup>
- NREL APIs are RESTful and data can be returned in either JSON or XML, and in some cases CSV.
- APIs and datasets include:
 - City Energy Data (SLED)
 - Utility Rates (URDB via OpenEI and Ventyx data via NREL)
 - Energy Incentives (DSIRE data)
 - Energy Optimization (REopt Lite)
 - Transportation – (AFDC and Transportation Laws and Incentives)

SLED - State and Local Energy Data



SLED allows users to access energy market data for cities and states related to buildings and industry, electricity and natural gas, and transportation.

These APIs power our State and Local Energy Data tool -

<https://apps1.eere.energy.gov/sled/cleap.html>

- Buildings and Industry
- small_building_pv – get small building pv data for a city/state or ZIP
- Electricity and Natural Gas
- Emissions
- General
- Transportation

https://developer.nrel.gov/docs/cleap/buildings_and_industry/

Utility Rates



The Utility Rate Database ([URDB](http://en.openei.org/wiki/Utility_Rate_Database)) is a free storehouse of rate structure information from utilities in the United States. The URDB includes rates for utilities based on the authoritative list of U.S. utility companies maintained by the U.S. Department of Energy's Energy Information Administration. 42,222 rates have been contributed for 3,760 EIA-recognized utility companies. Information about the URDB itself, as well as a limited querying capability, can be found at: http://en.openei.org/wiki/Utility_Rate_Database



The OpenEI Utility Rates API provides access to complex utility rate structure information (across all sectors) for most U.S. utility companies from the U.S. Utility Rate Database. API documentation is available at:

http://en.openei.org/services/doc/rest/util_rates/?version=3

The NREL utility rates API provides annual average utility rates (\$/kWh) for residential, commercial and industrial sectors as well as the local utility name for a specific location. Data source is Ventyx Research Inc. (ABB) and the Energy Information Agency (EIA) and is updated with 2012 data. The documentation for this API can be found at:

<http://developer.nrel.gov/docs/electricity/utility-rates-v3>

Incentives



The Database of State Incentives for Renewables & Efficiency (DSIRE) is a comprehensive source of information on state, local, utility, and federal incentives and policies that promote renewable energy and energy efficiency. <http://www.dsireusa.org>

The DSIRE API (<http://www.dsireusa.org/resources/data-and-tools>) provides two endpoints for directly accessing their data:

1. oGetPrograms – returns data on all incentive programs (Note: these are large queries that return thousands of results)
2. oGetProgramsByDate – returns data on incentive programs that were last updated sometime between the two dates supplied



The OpenEI Incentives API Provides information about incentives for renewables and efficiency associated with a specific location. Filterable by sector (commercial, industrial, residential) and category (fed/state/local/etc). <http://en.openei.org/services/doc/rest/incentives>
OpenEI can filter by sector, category (fed/state/etc).

The NREL energy incentives API lists the incentives found in the DSIRE quantitative spreadsheet by location. Filterable by category (solar, wind, etc) and technology (solar pv, lighting, roofs, etc). <http://developer.nrel.gov/docs/electricity/energy-incentives-v2>
NREL can filter by category (solar, etc) and technology (lighting, roofs, etc).

REopt



The REopt Lite API recommends an optimal mix of renewable energy, conventional generation, and energy storage technologies to meet cost savings and energy performance goals, including the hourly optimal operation of the system.

Powers the REopt Lite web application: <https://reopt.nrel.gov/tool>

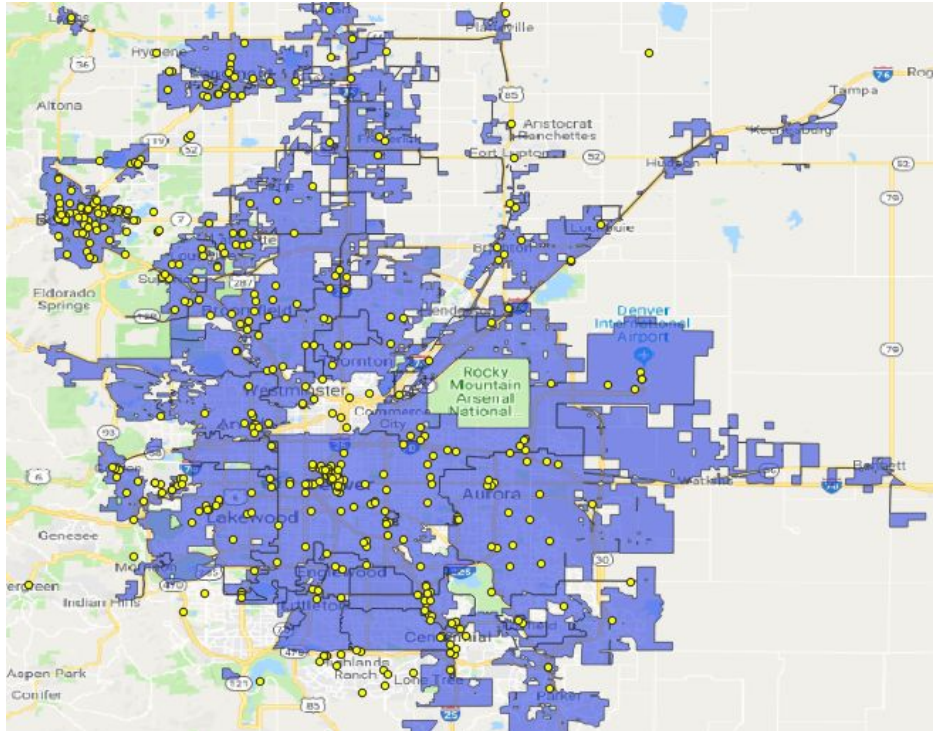
- Evaluate the economic viability of grid-connected PV and battery storage at a site.
- Identify system sizes and battery dispatch strategies to minimize energy costs.
- Estimate how long a system can sustain critical load during a grid outage.
- <https://developer.nrel.gov/docs/energy-optimization/reopt-v1/>

Transportation APIs

APIs related to alternative fuel vehicles and infrastructure. Includes electric charging, biodiesel, compressed natural gas, ethanol, hydrogen, liquefied natural gas, and propane.

Powers many tools and apps, including the [alternative fuels data center](#).

- [Alternative Fuel Stations](#): A database of all the alternative fuel stations in the US & Canada. Find nearby stations, find stations along a route, or bulk download the entire dataset. API endpoints include:
 - All Stations
 - Stations by ID
 - Last Updated Date
 - Nearest Stations
 - Stations Nearby Route



- [Transportation Laws and Incentives](#): Includes information on both federal and state incentives for alternative fuel vehicles.
- API Documentation: <https://developer.nrel.gov/docs/transportation/>

Building APIs:

NREL offers services related to energy efficiency and the use of renewable technologies in residential and commercial buildings. Services included are:

- [Building Component Library](#): Here, users can access energy data on individual components or energy conservation measures for buildings. This data can be used to create building energy models. For web service details, documentation, and access, see the [Building Component Library API documentation](#).

Building Component Library

Welcome, Guest! [Login](#)

[Search](#)

Any User

As an **individual** you can:

- download public components and measures to use in your energy models

YOU

Register and Join a Group

As a group **member** you can:

- download public and group specific components and measures to use in your energy models
- upload components and measures to share with your group and/or the public, after group administrator approval.

ADMIN

YOU

Start a New Group

As a group **administrator** you can:

- download and upload components to share with the public or just your group
- review membership requests
- approve public uploads of other members

YOU

ADMIN

1 2 3

Components

Total Components: 48341

The components are designed to provide data to the energy modeler and simplify the process of gathering inputs. The range of components goes from whole buildings to detailed files, like duct sealing components.

[search](#)

[Browse Components](#)

Measures

Total Measures: 344

Energy saving measures are scripts that have been created to apply an energy conservation measure on an energy model. An example measure is adding overhangs to all south-facing windows in the model.

[search](#)

[Browse Measures](#)

Groups

0

- About the BCL
- Developer Resources

- [Commercial Building Resource Database](#): Resources to support the adoption of energy-saving building technologies. Endpoints include:
 - Commercial Building Resource Events
 - Commercial Building Resource Vocabularies
 - Commercial Building Resources
- [High Performance Building Database](#): The Buildings Database is a shared resource for the building industry. The Database, developed by the U.S. Department of Energy and the NREL, is a unique central repository of in-depth information and data on high-performance, green building projects across the United States and abroad.
- [Standard Work Specifications](#): Retrieve standard work specification details for home energy upgrades.

Colorado Subsets:

All of these APIs can be constrained in the query to return only Colorado related information. Alternately, these datasets are subset on the Colorado Information Marketplace as these select datasets

- List
- And
- Link
- Datasets

All Energy-Related Datasets on CIM:

Dataset_Title	Link	Description
Natural Gas Underground Storage in Colorado 2014	evkd-zgn4	Information about the Natural Gas Underground Storage resources generated for Colorado Counties by the US Energy Information Administration (USEIA) and updated annually. Navigate to source for most current information.
Crude Oil Pipelines in Colorado 2014	mv3v-5qet	Major crude oil pipelines data for Colorado are maintained by the US Energy Information Administration (USEIA) and updated annually. Navigate to source for most current information.
Natural Gas Prices in Colorado	e4ky-6g2n	Natural gas prices by type per month, since 1989, from the US Energy Information Administration (USEIA).
Alternative Fuels and Electric Vehicle Charging Station Locations in Colorado	team-3ugz	Alternative Fuels and Electric Vehicle Charging Station locations are gathered by the National Renewable Energy Laboratory (NREL) and verified annually.
Electricity Net Metering by Utility in US	4jjg-g3yq	Metering for various energy companies broken down by month and state, since 2011, from the US Energy Information Administration (USEIA).

Wind Turbines in Colorado 2013	knn6-7fy9	Industrial-scale onshore wind turbine facility information, turbine technical specifications and corresponding locations in the Colorado produced by the US Geological Survey (USGS) as of July 22, 2013.
Electricity Revenue in US	cdkn-c7n9	Revenue and pricing for electricity consumption by month in each state, since 1990 from the US Energy Information Administration (USEIA).
Energy Profile in Colorado 2014	443p-eijy	Data collected to measure success of implementing Smart Grid, and other quick facts about Colorado's national ranking for energy use, production and efficiencies. Compiled in 2014 from the National Renewable Energy Laboratory (NREL).
Crude Oil Rail Terminals in Colorado 2014	hb4b-8v4g	Rail terminal locations that handle the loading and unloading of crude oil in the State of Colorado as produced by US Energy Information Administration (USEIA). Navigate to source for most current information.
Electricity Revenue by Utility in US	ue5s-8u8t	Electricity revenue and counts broken down by utility company and by sector, since 1999, from the US Energy Information Administration (USEIA).
Alternative Energy Laws and Incentives in Colorado 2014	nxw4-ev8w	Law titles, text and dates for biofuels, natural gas, plug in electric and more categories from National Renewable Energy Laboratory (NREL) since 2007 and updated annually after each state's legislative session ends. Navigate to NREL source for most current information.
Solar PV Capacity Factor in Colorado 2015	f325-6r9c	Annual average capacity factor from the National Renewable Energy Laboratory (NREL).
Gasoline Prices in Colorado	8pk9-mh2i	Gas prices for every week since 2000, broken down by type, from the US Energy Information Administration (USEIA).
Truck Station Electrification in Colorado 2014	c8jj-hcxj	Electrified parking spaces (EPS) for Colorado is updated annually by The U.S. Department of Transportation (DOT). Navigate to source for most current information.
Biomass Potential in Colorado 2014	9bzu-nqxb	Information about the biomass resources generated for Colorado Counties by the National Renewable Energy Laboratory (NREL) and verified annually. Navigate to NREL source for most current information.
Solar Global Horizontal Irradiance in Colorado 2014	rtw9-6tit	Average daily total solar global horizontal irradiance average from 1998 to 2014 from the National Renewable Energy Laboratory (NREL).
Biomethane Potential in Colorado 2014	fypu-tup4	Information about the Biomethane resources generated for Colorado Counties by the National Renewable Energy Laboratory (NREL) and verified annually. Navigate to NREL source for most current information.

Solar Direct Normal Irradiance in Colorado 2014	unz2-68bn	Daily total solar direct normal irradiance average from 1998 to 2014 from the National Renewable Energy Laboratory (NREL).
Geothermal Potential in Colorado 2009	rpkv-ifh4	Geothermal potential from the National Renewable Energy (NREL) Laboratory in 2009 clipped to the state of Colorado.
State Agency Electricity Usage in Colorado	uir2-bpe7	Electricity usage for facilities utilized by state agencies dating back to fiscal year 2015 provided by the Colorado Energy Office (CEO).
State Agency Water and Sewer Usage in Colorado	nymn-sjs9	Water, sewage, and steam useage for facilities utilized by state agencies dating back to fiscal year 2015 provided by the Colorado Energy Office (CEO).
State Agency Fuel Usage in Colorado	et6s-ufjm	Fuel useage including natural gas, propane, oil, and diesel for facilities utilized by state agencies dating back to fiscal year 2015 provided by the Colorado Energy Office (CEO).