

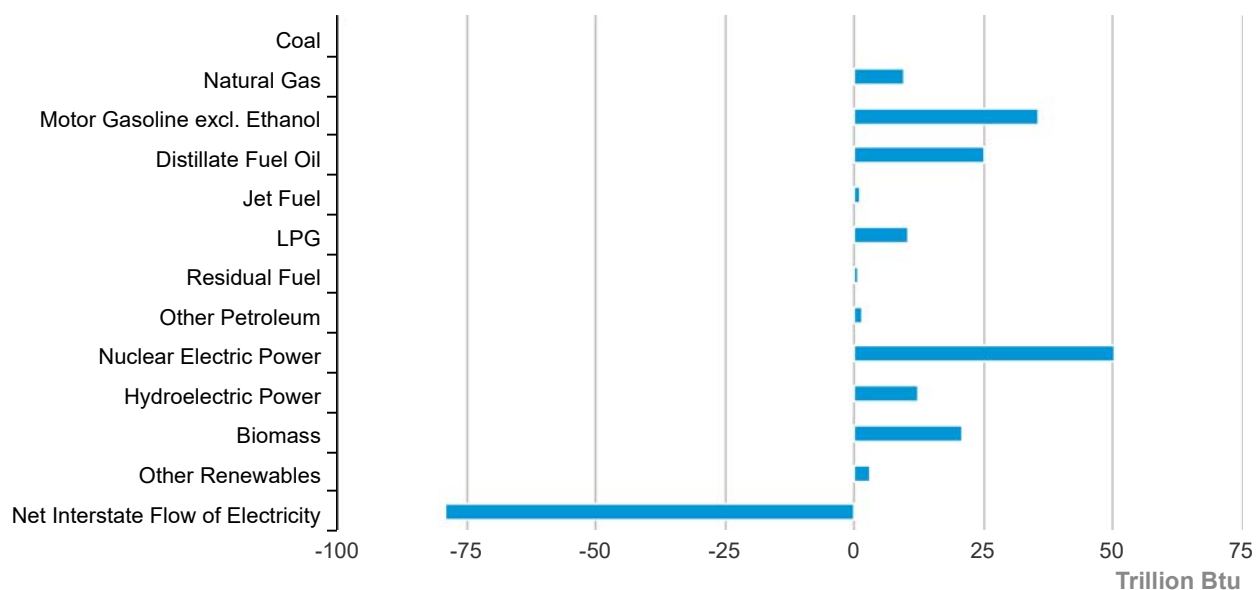
Vermont State Energy Profile

Vermont Quick Facts

- With the permanent shut down of the Vermont Yankee Nuclear Plant at the end of 2014, Vermont lost 55% of its electricity generating capacity and the source of more than 70% of its net generation in recent years.
- In 2014, 27% of Vermont's net electricity generation was produced by renewable energy, including hydroelectric, biomass, wind, and solar resources.
- Vermont has a voluntary goal of obtaining 25% of electricity consumed in the state from renewable energy resources by 2017; the resources must have begun operating after 2004.
- Vermont's Clean Energy Development Fund is promoting winter heating with high-efficiency wood combustion technologies and fuel from sustainable forest ecosystems.
- All new electricity generating capacity added to Vermont's grid in 2014 was solar-powered.

Last Updated: May 21, 2015

Vermont Energy Consumption Estimates, 2013



Source: Energy Information Administration, State Energy Data System

Data

Last Update: December 17, 2015 | **Next Update:** January 21, 2016

Energy Indicators

Demography	Vermont	Share of U.S.	Period
Population	0.6 million	0.2%	2014
Civilian Labor Force	0.3 million	0.2%	Oct-15
Economy	Vermont	U.S. Rank	Period
Gross Domestic Product	\$ 29.6 billion	51	2014
Gross Domestic Product for the Manufacturing Sector	\$ 2,875 million	47	2014
Per Capita Personal Income	\$ 46,428	20	2014
Vehicle Miles Traveled	7,116 million miles	49	2013
Land in Farms	1.3 million acres	42	2012
Climate	Vermont	U.S. Rank	Period
Average Temperature	42.0 degrees Fahrenheit	42	2014
Precipitation	46.1 inches	17	2014

Prices

Petroleum	Vermont	U.S. Average	Period	find more
Domestic Crude Oil First Purchase	--	\$ 41.60 /barrel	Sep-15	
Natural Gas	Vermont	U.S. Average	Period	find more
City Gate	\$ 5.96 /thousand cu ft	\$ 4.55 /thousand cu ft	Sep-15	find more
Residential	\$ 23.16 /thousand cu ft	\$ 16.40 /thousand cu ft	Sep-15	find more
Coal	Vermont	U.S. Average	Period	find more
Average Sales Price	--	\$ 37.24 /short ton	2013	
Delivered to Electric Power Sector	--	\$ 2.21 /million Btu	Sep-15	
Electricity	Vermont	U.S. Average	Period	find more
Residential	17.27 cents/kWh	13.06 cents/kWh	Sep-15	find more
Commercial	14.47 cents/kWh	10.94 cents/kWh	Sep-15	find more
Industrial	10.21 cents/kWh	7.18 cents/kWh	Sep-15	find more

Reserves & Supply

Energy Indicators

Reserves	Vermont	Share of U.S.	Period	find more
Crude Oil	--	--	2014	find more
Dry Natural Gas	--	--	2014	find more
Expected Future Production of Natural Gas Plant Liquids	--	--	2014	find more
Recoverable Coal at Producing Mines	--	--	2013	find more
Rotary Rigs & Wells	Vermont	Share of U.S.	Period	find more
Rotary Rigs in Operation	0 rigs	0.0%	2013	
Natural Gas Producing Wells	--	--	2014	find more
Production	Vermont	Share of U.S.	Period	find more
Total Energy	84 trillion Btu	0.1%	2013	find more
Crude Oil	--	--	Sep-15	find more
Natural Gas - Marketed	--	--	2014	find more
Coal	--	--	2013	find more
Capacity	Vermont	Share of U.S.	Period	
Crude Oil Refinery Capacity (as of Jan. 1)	--	--	2015	
Electric Power Industry Net Summer Capacity	650 MW	0.1%	Sep-15	
Net Electricity Generation	Vermont	Share of U.S.	Period	find more
Total Net Electricity Generation	125 thousand MWh	*	Sep-15	
Net Electricity Generation (share of total)	Vermont	U.S. Average	Period	
Petroleum-Fired	NM	0.3 %	Sep-15	find more
Natural Gas-Fired	0.1 %	35.1 %	Sep-15	find more
Coal-Fired	0 %	33.8 %	Sep-15	find more
Nuclear	0 %	18.9 %	Sep-15	find more
Hydroelectric	NM	4.6 %	Sep-15	find more
Other Renewables	38.3 %	6.5 %	Sep-15	
Stocks	Vermont	Share of U.S.	Period	find more

Energy Indicators

Motor Gasoline (Excludes Pipelines)	30 thousand barrels	0.2%	Sep-15	
Distillate Fuel Oil (Excludes Pipelines)	74 thousand barrels	0.1%	Sep-15	find more
Natural Gas in Underground Storage	--	--	Sep-15	find more
Petroleum Stocks at Electric Power Producers	48 thousand barrels	0.2%	Sep-15	find more
Coal Stocks at Electric Power Producers	0 thousand tons	0.0%	Sep-15	find more

Production Facilities Vermont

Major Coal Mines	None			find more
Petroleum Refineries	None			find more
Major Non-Nuclear Electricity Generating Plants	J C McNeil (City of Burlington-Electric) ; Berlin 5 (Green Mountain Power Corp) ; Bellows Falls (TransCanada Hydro Northeast Inc.) ; Sheffield Wind (Vermont Wind LLC) ; Wilder (TransCanada Hydro Northeast Inc.)			
Nuclear Power Plants	Vermont Yankee (Entergy Nuclear Vermont Yankee)			find more

Distribution & Marketing**Distribution Centers Vermont**

Petroleum Ports	None			find more
Natural Gas Market Hubs	None			

Major Pipelines Vermont

Crude Oil	Portland Pipeline			find more
Petroleum Product	None			
Natural Gas Liquids	None			
Interstate Natural Gas Pipelines	None			

Fueling Stations Vermont Share of U.S. Period

Motor Gasoline	470 stations	0.4%	2012
Liquefied Petroleum Gases	4 stations	0.1%	2013
Compressed Natural Gas	3 stations	0.3%	2013
Ethanol	1 stations	*	2013
Other Alternative Fuels	29 stations	0.2%	2013

Consumption & Expenditures

Energy Indicators

Summary	Vermont	U.S. Rank	Period	
Total Consumption	134 trillion Btu	51	2013	find more
Total Consumption per Capita	213 million Btu	44	2013	find more
Total Expenditures	\$ 3,257 million	50	2013	find more
Total Expenditures per Capita	\$ 5,196	14	2013	find more
by End-Use Sector	Vermont	Share of U.S.	Period	
Consumption				
» Residential	43 trillion Btu	0.2%	2013	find more
» Commercial	26 trillion Btu	0.1%	2013	find more
» Industrial	16 trillion Btu	0.1%	2013	find more
» Transportation	49 trillion Btu	0.2%	2013	find more
Expenditures				
» Residential	\$ 953 million	0.4%	2013	find more
» Commercial	\$ 527 million	0.3%	2013	find more
» Industrial	\$ 298 million	0.1%	2013	find more
» Transportation	\$ 1,479 million	0.2%	2013	find more
by Source	Vermont	Share of U.S.	Period	
Consumption				
» Petroleum	15.3 million barrels	0.2%	2013	find more
» Natural Gas	9.6 billion cu ft	*	2013	find more
» Coal	0.0 million short tons	0.0%	2013	find more
Expenditures				
» Petroleum	\$ 2,272 million	0.3%	2013	find more
» Natural Gas	\$ 102 million	0.1%	2013	find more
» Coal	\$ 0 million	0.0%	2013	find more
Consumption for Electricity Generation	Vermont	Share of U.S.	Period	find more
Petroleum	NM	NM	Sep-15	find more
Natural Gas	1 million cu ft	*	Sep-15	find more
Coal	0 thousand short tons	0.0%	Sep-15	find more
Energy Source Used for Home Heating (share of households)	Vermont	U.S. Average	Period	

Energy Indicators

Natural Gas	16.7 %	48.3 %	2013
Fuel Oil	43.8 %	5.5 %	2013
Electricity	4.7 %	37.4 %	2013
Liquefied Petroleum Gases	15.1 %	4.8 %	2013
Other/None	19.7 %	3.9 %	2013

Environment

Special Programs	Vermont			find more
Clean Cities Coalitions	State of Vermont Clean Cities Coalition			
Alternative Fuels	Vermont	Share of U.S.	Period	find more
Alternative Fueled Vehicles in Use	2,957 vehicles	0.2%	2011	find more
Ethanol Plant Operating Capacity	0 million gal/year	0.0%	2015	find more
Ethanol Consumption	726 thousand barrels	0.2%	2013	find more
Total Emissions	Vermont	Share of U.S.	Period	find more
Carbon Dioxide	6.0 million metric tons	0.1%	2013	
Electric Power Industry Emissions	Vermont	Share of U.S.	Period	find more
Carbon Dioxide	15 thousand metric tons	*	2013	
Sulfur Dioxide	*	*	2013	
Nitrogen Oxide	1 thousand metric tons	*	2013	

Analysis

Last Updated: May 21, 2015

Overview

Vermont is named for the Green Mountains, which rise between the Connecticut River on the New Hampshire border and the Hudson River Valley on the New York border and run the length of the state, from Canada south to the Berkshire Hills of Massachusetts. Vermont is the second smallest state by population, after Wyoming, and the fifth smallest state by area. Nearly one-third of the state's residents live in the Burlington metropolitan region, which is in the northwest around Lake Champlain. Most other Vermont residents live in small towns and on farms.

Three-fourths of the state is forested, supporting both the traditional wood products industry and biomass generation. One in six Vermont households uses wood products, such as wood pellets, as its primary heating source. Some areas have reforested as traditional dairy farming has declined. Vermont's industry is led by electronics manufacturing, health care, insurance, and tourism. The state has mild summers and snowy winters. The Green Mountains draw visitors year-round, and about one in seven homes is only occupied seasonally.

Three-fourths of Vermont is forested, providing renewable wood

Energy usage is dominated by transportation and by heating requirements in the frigid winters. As fuel costs to meet those needs rose, Vermont established long-term policies designed to increase both residential and business energy efficiency, reduce energy usage, and shift energy consumption to renewable sources. Vermont's total energy consumption is the lowest in the nation, and it is among the lowest one-fourth of states in energy consumed per capita.

*products for
electricity and
heating.*

Petroleum

Three-fourths of the energy consumed in Vermont is petroleum-based. The state does not produce or refine petroleum. Petroleum products are brought in by railroad and truck from neighboring states and Canada. One petroleum pipeline crosses Vermont but does not have delivery terminals in the state: the World War II-era Portland-Montreal Pipeline carrying crude oil from tanker docks at Portland, Maine, to refineries in Montreal, Canada. A proposal to reverse the flow in that pipeline and bring crude oil from Canada and North Dakota to Portland for shipment to refineries elsewhere encountered stiff opposition in part because the pipeline travels through the Northeast Kingdom, an ecologically sensitive corner of Vermont.

The transportation sector consumes nearly two-thirds of all petroleum products, partially because rural residents drive long distances. Because the entire state meets federal air quality standards, Vermont allows the statewide use of conventional motor gasoline. To reduce petroleum use in transportation, Vermont supports greater adoption of alternatively fueled vehicles, car-pooling, and land-use planning that reduces the need for automobiles.

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The residential sector consumes about one-fifth of petroleum products, mainly as heating oil. Nearly half of all Vermont households rely on fuel oil to heat their homes in the long winters, making the state particularly vulnerable to distillate fuel oil shortages and price spikes during the cold months. In early 2000, heating oil prices rose sharply when extreme weather increased demand and frozen rivers hindered delivery of new supply. Subsequently, the Northeast Home Heating Oil Reserve was created to avert future shortages. In 2011, the U.S. Department of Energy converted the reserve to ultra-low sulfur diesel (ULSD) to correspond with decisions made by several northeastern states to begin requiring ULSD for heating. Vermont is phasing in ULSD between 2014 and 2018. The reserve is located in Groton, Connecticut, and Revere, Massachusetts.

Natural gas

There is no natural gas production within Vermont. The state receives all of its natural gas by a small-capacity pipeline from Canada. In 2012, the state legislature banned hydraulic fracturing, a technology used for natural gas production. The state's single natural gas utility receives natural gas at Highgate, Vermont, and retails it in the Burlington, Vermont, area. That region is the only area of the state with access to natural gas. Expanding access has been explored as the cost of petroleum products has risen. Limited access makes Vermont the second-smallest natural gas consumer, and the second-smallest natural gas consumer per capita, among the states. Only about one in six households uses natural gas as its primary home heating fuel.

Coal

Vermont does not have any demonstrated coal reserves and is one of only two states in the nation without any coal-fired power plants; the other is Rhode Island. Vermont is part of the six-state Independent System Operator-New England (ISO-NE) regional grid, which is getting a shrinking share of its power from coal but remains dependent on coal facilities during periods of peak electricity demand.

Electricity

Vermont electric utilities own little generating capacity and rely on contracts with independent generators and the ISO-NE grid for power from neighboring states and Canada. With the permanent shut down of the Vermont Yankee Nuclear Plant at the end of 2014, Vermont lost 55% of its electricity generating capacity and the source of more than 70% of its net generation in recent years. Vermont Yankee's operator cited unfavorable economics as the trigger for the plant's closure. Vermont's remaining net electricity generation is provided almost entirely by hydroelectric power, biomass, and wind, which together produced about one-fourth of the state's net electricity generation in 2014. Historically, the largest share of out-of-state electricity has come from Canadian hydroelectric dams.

With Vermont Yankee's shut down, more power is coming from the New England grid, which is increasingly relying on natural gas. Canadian utilities want to expand exports from large-scale hydroelectric projects to New England population centers, but new regional transmission is needed to carry that power.

Vermont is the only New England state that has chosen not to restructure its electricity system. The state has one investor-owned distribution utility and 16 municipal or cooperative utilities. In 2012, the state's two largest electric utilities, serving about three-fourths of all customers, were combined into one investor-owned entity by Canada's Gaz Métro, which also owns Vermont's sole natural gas utility. Vermont's electric utilities pooled their transmission systems in 1956 to connect with hydroelectric generators in New York and Canada, so all wholesale transmission in the state is operated by a single entity, Vermont Electric Power Co.

Vermont is the only New England state that has chosen not to restructure its electricity system.

Vermont's per capita residential electricity consumption is in the lower third nationally. Demand for air conditioning is minimal during the mild summer, and fewer than 1 in 20 households use electricity as their primary home heating source. In 1999, Vermont created an Energy Efficiency Utility to reduce power demand peaks and optimize electricity usage for consumers statewide, the first such entity in the nation. The efficiency utility is funded by a fee on electric bills and regulated by the state. Vermont has been reducing consumption annually through its efficiency programs. The state is a member of the Regional Greenhouse Gas Initiative (RGGI) to reduce greenhouse gas emissions from power generation, and proceeds from the sale of RGGI carbon allowances help fund efficiency programs. With its small net electricity generation, all of it from renewable and, until recently, nuclear energy sources, Vermont has the lowest carbon dioxide emissions of any state in the nation.

Renewable energy

Nearly one-fourth of all energy consumed in Vermont comes from renewable sources, and the state is expanding the use of renewable energy for both heating and electricity. Almost one-third of school children attend facilities heated by wood products, such as wood pellets, or other biomass. About half of all electricity consumed comes from renewable sources, mostly from Canadian and New York hydroelectricity generators. Vermont has several dozen small hydroelectric dams, which typically produce about one-tenth of state consumption, and several generators that use wood and wood waste products.

Vermont is the only New England state without a mandatory renewable portfolio standard, but it is the first state in the nation to institute a feed-in tariff for small renewable energy facilities. The feed-in tariff, called the Standard Offer, guarantees owners of small renewable facilities, like solar photovoltaic (PV) panels, a specific price for their power, and requires electric utilities to buy all power offered until a statewide cap is reached. The state has also set a goal of sourcing 20% of electricity consumed in the state by 2017 from renewable sources that began operation after 2004. By 2032, the state goal is to get 75% of electricity from renewable sources. The state has a Clean Energy Development Fund, created initially with tax payments from the Vermont Yankee Nuclear Plant, to assist small-scale and community projects using renewable technologies. As of 2015, the fund is focusing its efforts on promoting high-efficiency combustion of wood fuels from sustainable forest ecosystems.

Solar power produced less than 0.5% of Vermont's net electricity generation in 2014, but all new electricity generating capacity that went online during the year was solar powered. The state added 27 megawatts of utility-scale solar PV

capacity. In total, including both utility-scale and small-scale residential and business solar PV installations, the state had 70 megawatts of solar capacity installed at the end of 2014. Vermont's potential commercial wind resources are concentrated on its mountain ridges. Four utility-scale wind farms contributed 4.4% of Vermont's net electricity generation in 2014. Several more wind projects are in the regulatory pipeline.

Other Resources

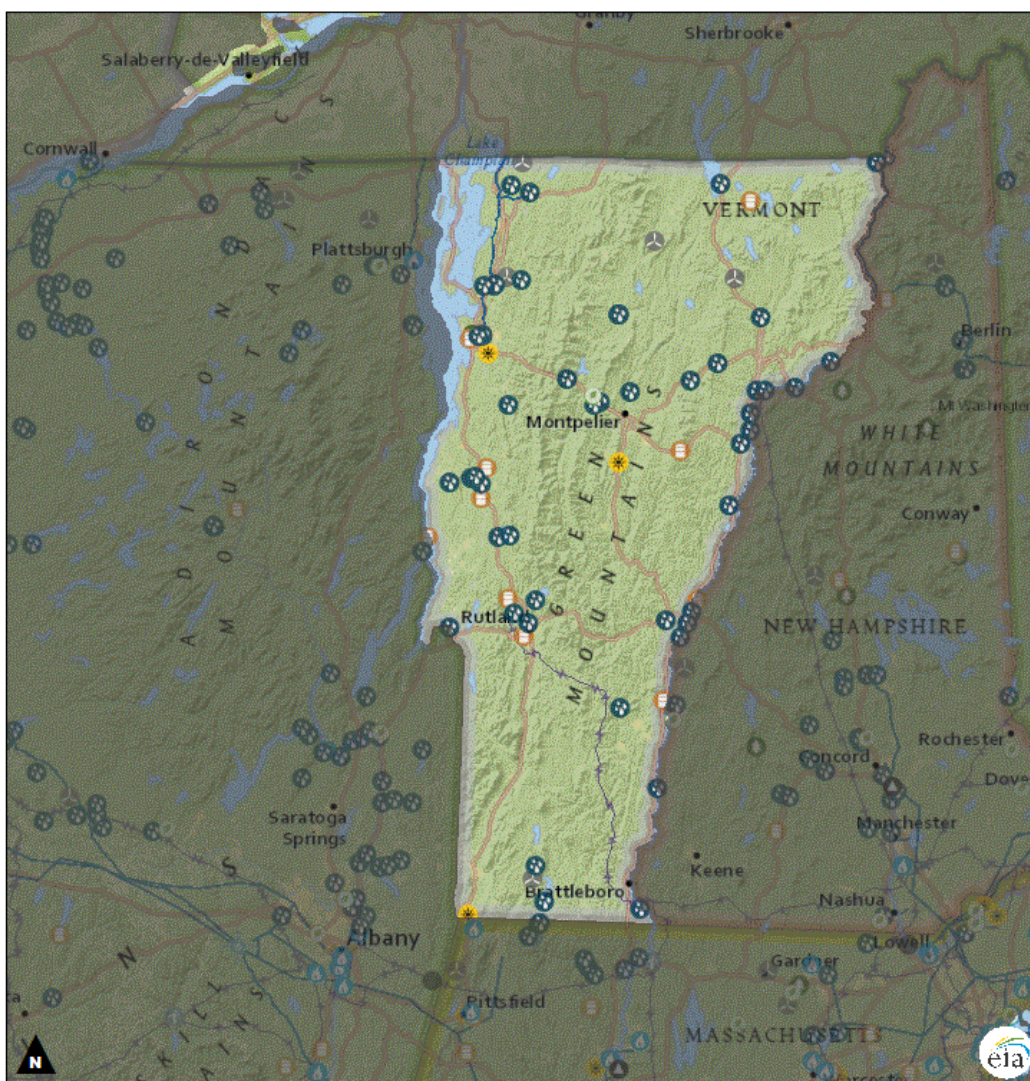
Energy-Related Regions and Organizations

- [Regional Transmission Organization \(RTO\): ISO New England \(ISO-NE\)](#)
- [Petroleum Administration for Defense District \(PADD\): 1A](#)
- [North American Electric Reliability Corporation \(NERC\) Region: Northeast Power Coordinating Council \(NPCC\)](#)

Other Websites

- [Vermont Public Service Board](#)
- [Vermont Department of Public Service, Energy Efficiency](#)
- [Vermont Department for Children and Families, Agency of Human Services, Fuel Assistance in Vermont](#)
- [Vermont Department for Children and Families, Agency of Human Services, Vermont's Weatherization Program](#)
- [Vermont Economic Development Authority, Vermont Sustainable Energy Loan Fund](#)
- [Alternative Fuels and Advanced Vehicle Data Center - Federal and State Incentives and Laws](#)
- [Benefits.Gov Energy Assistance \(105\)](#)
- [DSIRE - Database of State Incentives for Renewables and Efficiency](#)
- [National Association of Regulatory Utility Commissioners \(NARUC\)](#)
- [National Association of State Energy Officials \(NASEO\)](#)
- [National Conference of State Legislatures \(NCSL\)-Issues and Research - News Highlights: Issues and Research - Energy](#)
- [National Renewable Energy Laboratory \(NREL\)-Dynamic Maps, Geographic Information System \(GIS\) Data and Analysis Tools - Maps](#)
- [U.S. Geological Survey \(USGS\) Maps, Imagery, and Publications - Maps](#)
- [Vermont Department of Public Service](#)
- [United States Department of Health and Human Services - Administration for Children and Families - Low Income Home Energy Assistance Program](#)

Email suggestions for additional Vermont website resources to: states@eia.gov.



Grey Base: National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS,

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| ■ Mask | ⊕ Hydroelectric Power Plant | ⊕ Pumped Storage Power Plant |
| ▲ Surface Coal Mine | ⊕ Natural Gas Power Plant | ⊕ Solar Power Plant |
| ▼ Underground Coal Mine | ⊕ Nuclear Power Plant | ⊕ Wind Power Plant |
| ⊕ Biomass Power Plant | ● Other Power Plant | ⊕ Wood Power Plant |
| ⊕ Coal Power Plant | ⊕ Other Fossil Gases Power Plant | ⊕ Petroleum Refinery |
| ⊕ Geothermal Power Plant | ⊕ Petroleum Power Plant | ⊕ Strategic Petroleum Reserve |

<http://www.eia.gov/state/>