



EnergySpeak

Our Glossary of Energy Terms

Base load – The minimum amount of electric power delivered or required over a period of time at a steady rate.

Biodiesel – A fuel for diesel engines that produces less pollution. Biodiesel is derived from plant oils or animal fat, and can be blended with petroleum.

Biomass energy – A broad term for biological material that can be burned to produce energy, including trees, crops, algae and other plants, as well as waste materials such as food and drink manufacturing discharge, sludge, manure, industrial organic by-products and the organic fraction of household waste (see Waste-to-Energy).

Cap-and-trade – An approach used to curb emissions, particularly carbon dioxide, by using economic incentives. Generally, a government agency sets a cap on the amount of emissions permitted, and companies are given credits to emit a certain quantity. Companies that pollute less can sell their excess permits to others, while companies that pollute over their limit must purchase more allowances.

Carbon dioxide (CO₂) – A gas that is produced from the burning of fossil fuels; the single biggest man-made contributor to global warming.

CHP/Cogeneration CHP – Combined Heat and Power/Combined Cycle, also referred to as “cogeneration”; it is the simultaneous production of electricity and heat using a single fuel. The heat produced from the electricity-generating process is captured and used to produce high-and low-level steam. The steam can be used as a heat source for both industrial and domestic purposes and in steam turbines to generate additional electricity.

Class I Renewables – Renewable energy sources derived from solar power, wind power, fuel cell, methane

gas from landfills, or a biomass facility, provided such facility began operating after July 1, 1998, and the biomass is cultivated and harvested in a sustainable way.

Class II Renewables – Renewable energy sources derived from a trash-to-energy facility or biomass facility that does not meet the criteria for a Class I Renewable energy source. A hydropower facility, provided it is licensed by the Federal Energy Regulator Commission, or has met other licensing criteria is also considered a Class II Renewable energy source.

Class III Renewables – Sources derived from combined heat and power systems.

Climate Change – A phenomenon referring to variations in the Earth’s global climate over time caused by either natural processes or human activities. Recently the term Climate Change has applied specifically to modern average temperature variation and has become synonymous with global warming.

CT Climate Change Action Plan (CCAP) – A statewide proposal incorporating the recommendations set forth in the New England Governors/Eastern Canadian Premiers Climate Change Action Plan in 2001; its goal is to reduce greenhouse gas emissions to 1990 levels by the year 2010 and an additional 10% below that by the year 2020.

Compact fluorescent light bulbs (CFL) – A device that functions in a similar manner as a regular light bulb but uses only a quarter of energy to produce the same light; can last up to 11 years or 10,000 hours before being replaced.

Congestion Charge – Electric transmission congestion is the condition that occurs when transmission capacity is insufficient to enable safe delivery of all scheduled

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or desired wholesale electricity transfers. Connecticut statute allow the federally mandated congestion charge to take into account costs associated with “congestion” as well as wholesale power costs, must-run contract costs, and other items.

Conservation – Steps taken to use less energy. These steps may involve improved efficiency but usually are measures instituted to avoid waste, reduce consumption, and the installation of equipment to ensure efficient energy use.

Customer-Side Distributed Resources – Refers to distributed energy, load management, energy efficiency, energy storage and other small-scale technologies owned or operated by energy users other than a utility and which reduces or eliminates the purchase of electricity through the standard distribution network.

De-coupling – The separation of a utility’s profits from its sales to provide incentives for utilities to actively promote consumer adoption of energy efficiency and conservation measures.

Demand response – When customers change their electric usage from normal consumption patterns in response to peak demand, usually in hot weather months. Demand response programs use rates and incentives to help customers manage electricity use and reduce the risk of electrical emergencies, such as blackouts.

De-regulation – Removal of governmental controls in a sector to allow for a free marketplace.

Distributed generation – Users who generate their own heat or electricity (onsite generation) independently of the grid (e.g. solar panels on homes) can sell surplus power back into the grid.

Energy efficiency – Means using less energy to perform the same function. Energy efficiency activities are distinguished from demand-side management (DSM) in that DSM generally refers to utility-sponsored and financed programs and may also include load management measures, while energy efficiency is a broader term, not limited to any particular sponsor, energy type or sector.

Energy Star – A joint program of the U.S. EPA and the U.S. DOE that identifies and labels energy efficient products.

Fuel cells – Devices that produce electricity and heat by combining fuel and oxygen in an electrochemical reaction. Fuel cells can operate on a variety of

fuels including natural gas, propane, landfill gas, and hydrogen. Unlike traditional energy technologies, fuel cells do not use a combustion process to convert fuel into heat and mechanical energy, but instead convert chemical energy into heat and electricity (see Hydrogen fuel cell, which is a specific type of fuel cell).

Geothermal energy – Energy produced by extracting heat or steam from the temperature beneath the Earth’s surface and using it to heat water or space.

Global warming – A gradual increase in global temperatures caused by the emission of greenhouse gases that trap the sun’s heat in the Earth’s atmosphere; contributing gases include carbon dioxide, methane and nitrous oxides.

Grid – The system of transmission lines through which electricity is provided to customers.

Hybrid electric vehicle – A vehicle that uses both an internal combustion engine and electric batteries to increase fuel efficiency that runs on regular gasoline.

Hydrogen fuel cell – A battery in which hydrogen reacts with oxygen to produce electricity; by-product is water as opposed to carbon dioxide, which is the by-product of combustion engines. Currently, Connecticut is the center for more fuel cell research than anywhere else in the world [see fuel cell].

Hydropower – The capture of energy from moving water. In hydroelectric power, water drives a turbine that produces electricity. There is currently a debate on what constitutes environmentally beneficial hydropower, since projects can be highly destructive of river ecology, even small hydro dams. Low impact designs are favored among the environmental community.

Kilowatt (kW) – A measure of electricity defined as a unit of energy, measured as 1 kilowatt (1,000 watts).

Kilowatt hour (kWh) – A measure of the amount of electricity produced per hour; the unit on which the price of electrical energy is based (e.g. 1 kWh = ten 100 watt bulbs burning simultaneously for one hour).

LEED Standards – Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ is the nationally accepted benchmark for the design, construction, and operation of green buildings. LEED standards focus in on five key areas of human and environmental health: sustainable site

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development, water savings, energy efficiency, materials selection, and indoor environmental quality.

Load control or Load management – Steps taken to reduce power demand at peak load times or to shift some of it to off-peak times. This may be with reference to peak hours, peak days or peak seasons. The major driver of electric peaks is air-conditioning usage, which, therefore, becomes a prime target for load management efforts. Load management is achieved by persuading consumers to modify behavior or install equipment that automatically reduces consumption of specified customers during peak use periods.

Megawatt – One million watts of electricity.

Non-renewable energy – An energy source that can be used only once or cannot be replenished over a short period of time; includes fossil fuels such as coal, petroleum and natural gas.

Peak load - The maximum demand for electricity in a given period of time.

Photovoltaic systems (PV) – Refers to solid-state or semiconductor electrical devices (such as solar cells and arrays of solar panels) that convert light directly into direct current electricity. Inverters or static power converters are often used to convert the DC into usable 60 Hertz AC. PV panels are modular, lightweight, contain no moving parts (unless tracking devices are used), release no emissions and use no water.

Regional Greenhouse Gas Initiative (RGGI) – A cooperative effort by nine Northeastern and Mid-Atlantic states to reduce CO₂ emissions from the electric power sector, particularly by using a cap-and-trade system.

Renewable Energy or Renewable Fuel Sources – Energy derived from wind, hydro power, biomass or other solar resources. In Connecticut Renewables are categorized as either Class I, Class II, or Class III Renewables depending on their environmental impact.

Renewable Energy Portfolio (RPS) – A state policy that requires electricity providers to obtain a certain amount of their power from renewable energy sources by a certain date. Sources are divided into: Class I, Class II, or Class III Renewables depending on their environmental impact.

Solar power – The harnessing of energy from the sun's radiation to produce heat or electricity using panels, photovoltaic cells, or other technology.

Stealth load – The energy used by appliances while not in operation (e.g. the digital display on a microwave) that can contribute greatly to a customer's overall electricity usage. Also known as phantom load or vampire load.

Sustainable – A term used to characterize human activities that can be undertaken in such a way as to not adversely affect environmental conditions (such as soil, water quality, climate, biodiversity). More generally, sustainability refers to economic activity in today's world that does not interfere with the ability of future generations to enjoy economic prosperity, public health and natural environment.

Transmission line – A wire that carries large amounts of electricity over long distances from generating stations to substations before reaching the consumer. Transmission lines are generally high above the ground but can also be constructed below the surface. Lines operating at 69 kilovolts and higher are deemed "transmission" lines; lines operating at lower voltage are generally viewed as "distribution" lines.

Turbine – A machine for generating rotary mechanical power from the energy of a stream of fluid (such as water and steam), hot gas or wind).

Waste-to-energy – A range of processes associated with municipal or industrial waste where the waste is burned, gasified or digested at a high temperature and the heat energy is recovered to produce steam and/or generate electricity (see Biomass).

Wind Turbines – A wind energy conversion device that produces electricity; typically having one, two, or three blades.

Some of the Sources for the Glossary Terminology

CEAB Energy Plan Glossary

<http://www.ctenergy.org/glossary.html>

Energy Information Administration

http://www.eia.doe.gov/glossary/glossary_main_page.htm

Institute for Sustainable Energy Glossary

<http://www.easternct.edu/depts/sustainenergy/education/glossary.htm>