Energy Kids
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A

Activation Energy - Activation energy of a reaction is the amount of energy needed to start the reaction.

Active Heating System - A solar water or space-heating system that moves heated air or water using pumps or fans.

Air-Conditioning - Cooling and dehumidifying the air in a building by a refrigeration unit by a refrigeration unit powered by electricity or natural gas. This definition excludes fans, blowers, or evaporative cooling systems (swamp coolers) that are not connected to a refrigeration unit. (See this word used in context.)

Air-Conditioning Equipment - Either a central system, window or wall units that cool the air in a housing unit by a refrigeration unit powered by electricity or natural gas. This definition excludes fans, blowers, or evaporative cooling systems (swamp coolers) that are not connected to a refrigeration unit.

Alternating Current - An electric current that reverses its direction at regular intervals or cycles; In the U.S. the standard is 120 reversals or 60 cycles per second; typically abbreviated as AC. (See this word used in context.)

Alternative Fuel - A popular term for "non-conventional" transportation fuels made from natural gas (propane, compressed natural gas, methanol, etc.) or biomass materials (ethanol, methanol).

Alternative-Fuel Vehicle (AFV) - A vehicle designed to operate on an alternative fuel (e.g., compressed natural gas, methane blend, electricity). The vehicle could be either a vehicle designed to operate exclusively on alternative fuel or a vehicle designed to operate on alternative fuel and/or a traditional fuel.

Ampere - A unit of measure for an electrical current; the amount of current that flows in a circuit at an electromotive force of one Volt and at a resistance of one Ohm. Abbreviated as amp.

Anthropogenic - Made or generated by a human or caused by human activity. The term is used in the context of global climate change to refer to gaseous emissions that are the result of human activities, as well as other potentially climate-altering activities, such as deforestation.

Appliance - A piece of equipment, commonly powered by electricity, used to perform a particular energy-driven function. Examples of common appliances are refrigerators, clothes washers and dishwashers, conventional ranges/ovens and microwave ovens, humidifiers and dehumidifiers, toasters, radios, and televisions. (See this word used in context.)

Atomic Structure - The conceptualized concept of an atom, regarded as consisting of a central positively charged nucleus (protons and neutrons) and a number of negatively charged electrons revolving about in various orbits.

Average - The simple arithmetic average for a population; that is, the sum of all the values in a population divided by the size of the population. Population means are estimated by computing the weighted sum of the sample values, then dividing by the sum of the sample weights.

Avoided Cost - A renewable or cogeneration facility that qualifies for PURPA benefits is called a Qualifying Facility (QF). Utility companies buy the electricity from QFs at the "avoided cost." This is the cost it would take for the utility company to generate the amount of electricity the QF produces.

B

Barrel: A unit of volume equal to 42 U.S. gallons. One barrel weights 306 pounds or 5.80 million Btu of crude oil. Barrel is abbreviated as bbl.
Also, see a brief list of Barrels, and convert barrels into other units using the energy calculator.

Battery - An energy storage device made up of one or more electrolyte cells.

Biodiesel - An alternative fuel that can be made from any fat or vegetable oil. It can be used in any diesel engine with few or no modifications. Although biodiesel does not contain petroleum, it can be blended with diesel at any level or used in its pure form.

Biogenic waste - Waste made from materials that were produced by living organisms or biological processes. Note: EIA uses the term "biogenic" to refer only to organic nonfossil material of biological origin, such as paper or cotton.

Biofuels - Liquid fuels and blending components produced from biomass (plant) feedstocks, used primarily for transportation.

Bioreactor - A landfill where the waste actively decomposes rather being simply buried in a "dry tomb."

Biomass - Any organic (plant or animal) material which is available on a renewable basis, including agricultural crops and agricultural wastes and residues, wood and wood wastes and residues, animal wastes, municipal wastes, and aquatic plants.
See our brief sections on: Biomass Energy and Biomass Energy Milestones.

Boiler - a tank in which water is heated to produce either hot water or steam that is circulated for the purpose of heating and power.

Boiling Water Reactor - A nuclear reactor in which water is allowed to boil in the core. The resulting steam is used to drive a turbine generating electric power.

British thermal unit (Btu) - The amount of heat required to raise the temperature of one pound of water one degree Fahrenheit; equal to 252 calories. British thermal unit is abbreviated as Btu. See our section on using Btu to compare energy.

C

Calorie - A unit for measuring heat energy. This unit is equal to 4.184 joules. Often used instead of joules when dealing with the energy released from food.

Carbon Dioxide - A colorless, odorless noncombustible gas with the formula CO2 that is present in the atmosphere. It is formed by the combustion of carbon and carbon compounds (such as fossil fuels and biomass) and by respiration, which is a slow combustion in animals and plants, and by the gradual oxidation of organic matter in the soil.

Chain Reaction - A self-sustaining nuclear reaction which takes place during fission. A fissionable substance (i.e., uranium) absorbs a neutron and divides, releasing additional neutrons that are absorbed by other fissionable nuclei, releasing still more neutrons.

Chemical Energy - Energy stored in a substance and released during a chemical reaction such as burning wood, coal, or oil.

Circuit(s) - A conductor or a system of conductors through which electric current flows.

Climate Change - A term used to refer to all forms of climatic inconsistency, but especially to significant change from one prevailing climatic condition to another. In some cases, "climate change" has been used synonymously with the term "global warming"; scientists, however, tend to use the term in a wider sense inclusive of natural changes in climate, including climatic cooling.

Coal - A fossil fuel formed by the breakdown of vegetable material trapped underground without access to air.
See our brief sections on: Coal and Coal Milestones.

Coal-Fired Power Plant - A power plant that uses coal as the fuel to generate electricity.

Cofiring - The process of burning natural gas in conjunction with another fuel to reduce air pollutants.

Cogeneration - The production of electrical energy and another form of useful energy (such as heat of steam) through the sequential use of energy.

Collector Field - The area where many solar collectors are situated in a solar power plant.

Combustion - Chemical oxidation accompanied by the generation of light and heat.

Commercial Sector (of Economy) - The part of the economy having to do with the buying and selling of goods and services. The commercial sector is made up of merchants, businesses, etc.

Conversion Factors - A number that translates units of one measurement system into corresponding values of another measurement system. See our Energy Calculator.

D

Deforestation: - The net removal of trees from forested land.

Derrick - A frame tower that supports the drill equipment used to find oil and natural gas in the earth.

Diesel Engine -Diesel engines are internal combustion engines that burn diesel oil rather than gasoline.

Diesel Fuel - A fuel composed of distillates obtained in petroleum refining operation or blends of such distillates with residual oil used in motor vehicles. The boiling point and specific gravity are higher for diesel fuels than for gasoline.

Direct Current - An electric current that flows in only one direction through a circuit, as from a battery.

Distillate Fuel Oil - A general classification for one of the petroleum fractions produced in conventional distillation operations. It includes diesel fuels and fuel oils. Products known as No. 1, No. 2, and No. 4 diesel fuel are used in on-highway diesel engines, such as those in trucks and automobiles, as well as off-highway engines, such as those in railroad locomotives and agricultural machinery. Products known as No. 1, No. 2, and No. 4 fuel oils are used primarily for space heating and electric power generation.

Distillation Unit (atmospheric) - The primary distillation unit that processes crude oil (including mixtures of other hydrocarbons) at approximately atmospheric conditions. It includes a pipe still for vaporizing the crude oil and a fractionation tower for separating the vaporized hydrocarbon components in the crude oil into fractions with different boiling ranges. This is done by continuously vaporizing and condensing the components to separate higher oiling point material.

DOE - U.S. Department of Energy.

Drilling - The act of boring a hole (1) to determine whether minerals are present in commercially recoverable quantities and (2) to accomplish production of the minerals (including drilling to inject fluids). There are three types of drilling : exploratory - drilling to locate probable mineral deposits or to establish the nature of geological structures; such wells may not be capable of production if minerals are discovered; developmental - drilling to delineate the boundaries of a known mineral deposit to enhance the productive capacity of the producing mineral

property; and directional - drilling that is deliberately made to depart significantly from the vertical.

Dynamo - A device that changes mechanical energy into electrical energy.

E

Electrical Energy - The energy associated with electric charges and their movements.

Electricity - A form of energy characterized by the presence and motion of elementary charged particles generated by friction, induction, or chemical change. See our brief sections on: Electricity and Electricity Milestones.

Electricity Generation - The process of producing electric energy or the amount of electric energy produced by transforming other forms of energy, commonly expressed in kilowatthours (kWh) or megawatthours (MWh).

Electric Motor - a device that takes electrical energy and converts it into mechanical energy to turn a shaft.

Electric Power - The amount of energy produced per second. The power produced by an electric current.

Electrochemistry - The branch of chemistry that deals with the chemical changes produced by electricity and the production of electricity by chemical changes.

Electromagnetic - Having to do with magnetism produced by an electric current.

Electromagnetic Energy - Energy that travels in waves, such as ultra-violet radiation. It can be thought of as a combination of electric and magnetic energy.

Electromagnetic Waves - Radiation that consists of traveling waves of electric and magnetic disturbances. X-rays, light rays and radio waves are among the many kinds of electromagnetic waves.

Electron - A subatomic particle with a negative electric charge. Electrons form part of an atom and move around its nucleus.

Element - Any substance that cannot be separated into different substances. All matter is composed of elements.

Emission - A discharge or something that is given off; generally used in regard to discharges into the air. Or, releases of gases to the atmosphere from some type of human activity (cooking, driving a car, etc). In the context of global climate change, they consist of greenhouse gases (e.g., the release of carbon dioxide during fuel combustion). Learn more about Greenhouse Gas Emissions on EIA's main website (for grown-ups).

Energy - The ability to do work or the ability to move an object. Electrical energy is usually measured in kilowatthours (kWh), while heat energy is usually measured in British thermal units (Btu).
See our brief sections on What's Energy? and General Energy Milestones,

Energy Consumption - The use of energy as a source of heat or power or as a raw material input to a manufacturing process.

Energy Efficiency - Refers to activities that are aimed at reducing the energy used by substituting technically more advanced equipment, typically without affecting the services provided. Examples include high-efficiency appliances, efficient lighting programs, high-efficiency heating, ventilating and air conditioning (HVAC) systems or control modifications, efficient building design, advanced electric motor drives, and heat recovery systems.

Ethanol - A colorless liquid that burns to produce water and carbon dioxide. The vapor forms an explosive mixture with air and may be used as a fuel in internal combustion engines.
See our brief sections on: Ethanol and Ethanol Milestones.

F

Federal Energy Regulatory Agency(FERC) - The Federal government agency that regulates and oversees energy industries in the economic, environmental, and safety interests of the American public.

Filament - The fine metal wire in a light bulb that glows when heated by an electric current.

Fission - The splitting apart of atoms. This splitting releases large amounts of energy and one or more neutrons. Nuclear power plants split the nuclei of uranium atoms in a process called fission. See our section on Nuclear Energy.

Flat-Plate Solar Connector - A device designed to capture the suns energy and produce low temperature heat energy. They are commonly used as collectors in solar heating systems.

Flow - To move or run smoothly with unbroken continuity, as in the manner characteristic of a fluid.

Force - Something which changes the state of rest or motion of something.

Fossil Fuels - Fuels (coal, oil, natural gas, etc.) that result from the compression of ancient plant and animal life formed over millions of years.
See our brief sections on:

- Oil and Oil Milestones,
- Coal and Coal Milestones,
- Natural Gas and Natural Gas Milestones, and
- Uranium and Nuclear Fuel Milestones.

Fuel - Any material that can be burned to make energy.
See our brief sections on: Fuels and Fuel Milestones.

Fuel Cycle - The entire set of stages involved in the utilization of fuel, including extraction, transformation, transportation, and combustion.

Fuel Oil - An oil that is used for fuel and that usually ignites at a higher temperature than kerosene.

Furnace - An enclosed structure in which heat is produced for the purpose of heating a house or a building.

Fusion - When the nuclei of atoms are combined or "fused" together. The sun combines the nuclei of hydrogen atoms into helium atoms in a process called fusion. Energy from the nuclei of atoms, called "nuclear energy" is released from fusion. See the Scientific Forms of Energy.

G

Gallon - A measure of volume equal to 4 quarts (231 cubic inches). One barrel equals 42 gallons.
Also see our How Big is a Barrel? and Energy Calculator.

Gas - (1) A non-solid, non-liquid (as hydrogen or air) substance that has no fixed shape and tends to expand without limit. (2) A state of matter in which the matter concerned occupies the whole of its container irrespective of its quantity. Includes natural gas, coke-oven gas, blast furnace gas, and refinery gas.

Gasoline - A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blended to form a fuel suitable for use in spark-ignition engines.
See our brief section on: Transportation Milestones.

Gas To Liquids (GTL) - A process that combines the carbon and hydrogen elements in natural gas molecules to make synthetic liquid petroleum products, such as diesel fuel.

Gas Turbine Plant - A plant in which the prime mover is a gas turbine. A gas turbine consists typically of an axial-flow air compressor and one or more combustion chambers where liquid or gaseous fuel is burned and the hot gases are passed to the turbine and where the hot gases expand drive the generator and are then used to run the compressor.

Generator - A device that turns mechanical energy into electrical energy. The mechanical energy is sometimes provided by an engine or turbine.

Generating Capacity - The amount of electrical power a power plant can produce.

Geothermal Energy - The heat energy that is produced by natural processes inside the earth. It can be taken from hot springs, reservoirs of hot water deep below the ground, or by breaking open the rock itself.
See our brief sections on: Geothermal Energy and Geothermal Energy Milestones.

Global Warming - An increase in the near surface temperature of the Earth. Global warming has occurred in the distant past as the result of natural influences, but the term is today most often used to refer to the warming some scientists predict will occur as a result of increased anthropogenic emissions of greenhouse gases.

Gravity - The natural force of attraction of the mass of a heavenly body (as the earth) for bodies at or near its surface.

Greenhouse Effect - The effect of the Earth's atmosphere, due to certain gases, in trapping heat from the sun; the atmosphere acts like a greenhouse. Learn more about the Greenhouse Effect on EIA's main website (for grown-ups).

Greenhouse Emissions - Waste gases given off by industrial and power plants, automobiles and other processes. Learn more about Greenhouse Gas Emissions on EIA's main website (for grown-ups).

Greenhouse Gases - Gases that trap the heat of the sun in the Earth's atmosphere, producing the greenhouse effect. The two major greenhouse gases are water vapor and carbon dioxide. Lesser greenhouse gases include methane, ozone, chlorofluorocarbons, and nitrogen oxides. Learn more about Greenhouse Gas Emissions on EIA's main website (for grown-ups).

Green Pricing - In the case of renewable electricity, green pricing represents a market solution to the various problems associated with regulatory valuation of the nonmarket benefits of renewables. Green pricing programs allow electricity customers to express their willingness to pay for renewable energy development through direct payments on their monthly utility bills.

Grid - The layout of an electrical distribution system.

H

Heat Content - The gross heat content is the number of British thermal units (Btu) produced by the combustion, of a volume of gas under certain with air of the same temperature and pressure as the gas, when the products of combustion are cooled to the initial temperature of gas and air and when the water formed by combustion is condensed to the liquid state.

Heat Exchanger - Any device that transfers heat from one fluid (liquid or gas) to another or to the environment.

Heating Equipment - Any equipment designed and/or specifically used for heating ambient air in an enclosed space. Common types of heating equipment include: central warm air furnace, heat pump, plug-in or built-in room heater, boiler for steam or hot water heating system, heating stove, and fireplace.

Heliostat - Flat sun-tracking mirrors used to reflect and concentrate the suns' energy onto a central receiver tower.

Horsepower - A unit for measuring the rate of work (or power) equivalent to 33,000 foot-pounds per minute or 746 watts.

Hydroelectric Power Plant - A power plant that uses moving water to power a turbine generator to produce electricity.

Hydrogen - A colorless, odorless, highly flammable gaseous element. It is the lightest of all gases and the most abundant element in the universe, occurring chiefly in combination with oxygen in water and also in acids, bases, alcohols, petroleum, and other hydrocarbons.

Hydropower - Energy that comes from moving water.
See our brief sections on: Water Energy.

I

Incandescent Light Bulb - An incandescent bulb is a type of electric light in which light is produced by a filament heated by electric current. The most common example is the type you find in most table and floor lamps. In commercial buildings, incandescent lights are used for display lights in retail stores, hotels and motels. This includes the very small, high-intensity track lights used to display merchandise or provide spot illumination in restaurants.

Induction - The process of producing an electrical or magnetic effect through the influence of a nearby magnet, electric current, or electrically charged body.

Industrial Sector (of the Economy) - The part of the economy having to do with the production of goods. The industrial sector is made up of factories, power plants, etc.

Inertia - A property of matter by which it remains at rest or in uniform motion in the same straight line unless acted upon by some outside force.

J

Joule - A metric unit for measuring work and energy, named after James Joule. It is equal to the work done when a one ampere current is passed through a resistance of one ohm for one second. See our Energy Calculator.

K

Kerosene - A thick oil obtained from petroleum and used as a fuel and solvent.

Kilowatt - A unit of power, usually used for electric power or to energy consumption (use). A kilowatt equals 1000 watts. See our brief section on Measuring Electricity and our Energy Calculator.

Kilowatthour(kWh) - A measure of electricity defined as a unit of work or energy, measured as 1 kilowatt (1,000 watts) of power expended for 1 hour. One kWh is equivalent to 3,412 Btu or 3.6 million joules.

Kinetic - The energy of a body which results from its motion.

Kinetic Theory of Energy - The theory that the minute particles of all matter are in constant motion and that the temperature of a substance depends upon the velocity (speed) of the motion.

Kinetic Theory of Gases - The theory that physical properties of a gas are due to the rapid motion in a straight line of its molecules, to their impacts against each other and the walls of the container, and to weak attraction forces between the molecules.

L

Light - Radiant electromagnetic energy that an observer can see.

Liquefied Petroleum Gas (LPG) -A group of hydrocarbon-based gases derived from crude oil refining or natural gas fractionation. They include ethane, ethylene,

propane, propylene, normal butane, butylene, isobutane, and isobutylene. For convenience of transportation, these gases are liquefied through pressurization.

Load - The power and energy requirements of users on the electric power system in a certain area or the amount of power delivered to a certain point.

Longwall Mining - An automated form of underground coal mining characterized by high recovery and extraction rates, feasible only in relatively flat-lying, thick, and uniform coalbeds. A high-powered cutting machine is passed across the exposed face of coal, shearing away broken coal, which is continuously hauled away by a floor-level conveyor system. Longwall mining extracts all machine-minable coal between the floor and ceiling within a contiguous block of coal, known as a panel, leaving no support pillars within the panel area. Panel dimensions vary over time and with mining conditions but currently average about 900 feet wide (coal face width) and more than 8,000 feet long (the minable extent of the panel, measured in direction of mining). Longwall mining is done under movable roof supports that are advanced as the bed is cut. The roof in the mined-out area is allowed to fall as the mining advances.

M

Magnet - Any piece of iron, steel, etc., that has the property of attracting iron or steel.

Mechanical Energy - The energy of motion used to perform work.

Mechanical Power - The power produced by motion.

Megawatt - A unit of electrical power equal to 1000 kilowatts or one million watts. See our Energy Calculator.

Mercaptan - An organic chemical compound that has a sulfur like odor that is added to natural gas before distribution to the consumer, to give it a distinct,

unpleasant odor (smells like rotten eggs). This serves as a safety device by allowing it to be detected in the atmosphere, in cases where leaks occur.

Methane -A colorless, flammable, odorless hydrocarbon gas (CH4) which is the major component of natural gas. It is also an important source of hydrogen in various industrial processes. Methane is a greenhouse gas.

Miles Per Gallon (MPG) - A measure of vehicle fuel efficiency. MPG is computed as the ratio of the total number of miles traveled by a vehicle to the total number of gallons consumed.
Also see our Energy Calculator.

Mobile Home - A trailer that is used as a permanent dwelling.

Molecule - Particles that normally consist of two or more atoms joined together. An example is a water molecule that is made up of two hydrogen atoms and one oxygen atom.

Multifamily Dwellings - Apartment building and condominiums.

Municipal Solid Waste (MSW) - Residential solid waste and some nonhazardous commercial, institutional, and industrial wastes.
See our brief sections: Garbage, and MSW Milestones.

N

Natural Gas - An odorless, colorless, tasteless, non-toxic clean-burning fossil fuel. It is usually found in fossil fuel deposits and used as a fuel.
See our brief sections on: Natural Gas and Natural Gas Milestones.

Natural Gas Hydrates - Solid, crystalline, wax-like substances composed of water, methane, and usually a small amount of other gases, with the gases being trapped in the interstices of a water-ice lattice. They form beneath permafrost and on the ocean floor under conditions of moderately high pressure and at temperatures near the freezing point of water.

Natural Gas Liquids (NGL) - Substances that can be processed as liquids out of natural gas by absorption or condensation.

Non-biogenic waste: Waste made from fossil materials or materials of non-biological origin, such as plastics, and tire-derived fuels.

Nonconcentrator System - A type of solar energy system that does not rely on special devices to concentrate the sun's radiation while collecting it.

Nonrenewable - Fuels that cannot be easily made or "renewed." We can use up nonrenewable fuels. Oil, natural gas, and coal are nonrenewable fuels.
See our brief sections on Nonrenewable Energy.

Nuclear Energy - Energy that comes from splitting atoms of radioactive materials, such as uranium.
See our brief sections on: Nuclear Energy, Nuclear Power Milestones and Electricity Milestones.

O

Offshore - The geographic area that lies seaward of the coastline. In general, the coastline is the line of ordinary low water along with that portion of the coast that is in direct contact with the open sea or the line marking the seaward limit of inland water.

Offshore Reserves and Production - Unless otherwise dedicated, energy source reserves and production that are in either state or Federal domains, located seaward of the coastline.

Ohm - The unit of resistance to the flow of an electric current.

Oil - The raw material that petroleum products are made from. A black liquid fossil fuel found deep in the Earth. Gasoline and most plastics are made from oil.
See our brief sections on: Oil and Oil Milestones.

OPEC - The Organization of Petroleum Exporting Countries organized for the purpose of negotiating with oil companies on matters of oil production, prices, and future concession rights. Current members (as of the date of writing this definition) are Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela. See OPEC's site at http://www.opec.org for more information.

Organic Waste - Waste material of animal or plant origin.

Outer Continental Shelf - Offshore Federal domain.

P

Parabolic Trough - A type of solar concentrator collector that has a linear parabolic shaped reflector that focuses the sun's radiation on a receiver at the focus of the reflector.

Passive Heating System - A means of capturing, storing, and using heat from the sun.

Peak Load Plant- A plant usually housing old, low-efficiency steam units, gas turbines, diesels, or pumped-storage hydroelectric equipment normally used during the peak-load periods.

Penstock - A large pipe which carries moving water from the reservoir to a turbine generator in a hydropower plant.

Petrochemicals - Organic and inorganic petroleum compounds and mixtures that include but are not limited to organic chemicals, cyclic intermediates, plastics and resins, synthetic fibers, elastomers, organic dyes, organic pigments, detergents, surface active agents, carbon black, and ammonia.

Periodic Table - Table of all known elements in a meaningful pattern. See Periodic Table.

Petroleum - Generally refers to crude oil or the refined products obtained from the processing of crude oil (gasoline, diesel fuel, heating oil, etc.) Petroleum also includes lease condensate, unfinished oils, and natural gas plant liquids.
See our brief sections on: Petroleum and Petroleum Milestones.

Photon - A particle of light that acts as an individual unit of energy.

Photosynthesis - The process by which green plants make food (carbohydrates) from water and carbon dioxide, using the energy in sunlight.

Photovoltaic Cells - A device, usually made from silicon, which converts some of the energy from light (radiant energy) into electrical energy. Another name for a solar cell.
See our brief sections on: Photovoltaics and Photovoltaic Milestones.

Photovoltaic Conversion - The process by which radiant (light) energy is changed into electrical energy.

Pipeline, Distribution - A pipeline that conveys gas from a transmission pipeline to its ultimate consumer.

Plasma - A high-temperature, ionized gas composed of electrons and positive ions in such number that it is electrically neutral.

Power - The rate at which energy is transferred. Electrical energy is usually measured in watts. Also used for a measurement of capacity.

Power Degradation - The loss of power when electricity is sent over long distances.

Power-Generating Efficiency - The percentage of the total energy content of a power plant's fuel which is converted into electric energy. The remaining energy is lost to the environment as heat.

Power Plant - A facility where power, especially electricity, is generated.

Pressurized Water Reactor - A reactor in which water, heated by nuclear energy, is kept a high pressure to prevent the water from boiling. Steam is then generated in a secondary coolant loop.

Prime Mover - The engine, turbine, water wheel, or similar machine that drives an electric generator; or, for reporting purposes, a device that converts energy to electricity directly (i.e. photovoltaic solar and fuel cells).

Propane (C^3H^8) - A normally gaseous straight-chain hydrocarbon. It is a colorless paraffinic gas that boils at a temperature of -43.67 degrees Fahrenheit. It is extracted from natural gas or refinery gas streams.
See our brief sections on Propane.

Production, Oil and Gas - The lifting of oil and gas to the surface and gathering, treating, field processing (as in the case of processing gas to extract liquid hydrocarbons), and field storage.

Pumped Storage - a method of storing and producing electricity to supply high peak demands by moving water between reservoirs at different elevations.

Public Utility Regulatory Policies Act (PURPA) - A law passed by Congress in 1978 to promote more efficient use of fossil fuels and greater use of renewable energy for generating electricity. A renewable or cogeneration facility that qualifies for PURPA benefits is called a Qualifying Facility (QF). Utility companies buy the electricity from QFs at the “avoided cost.” This is the cost it would take for the utility company to generate the amount of electricity the QF produces.

Pyrolysis - The decomposition of biomass at very high temperatures. It results in a mixture of solids (char), liquids (oxygenated oils), and gases (methane, carbon monoxide, and carbon dioxide).

Q

Quadrillion Btu: One quadrillion (10^{15}= 10 to the 15th power) British thermal units (Btu).
See British Thermal Unit (Btu) and our section on using Btu to compare energy and our Converting Units.

Qualified Facilty(QF)- A renewable or cogeneration facility that qualifies for PURPA benefits is called a Qualifying Facility (QF).

R

R-Value - A measure of a material's resistance to heat flow in units of Fahrenheit degrees x hours x square feet per Btu. The higher the R-value of a material, the greater its insulating capability.

Radiant Energy - Any form of energy radiating from a source in waves.

Radiation - Any high-speed transmission of energy in the form of particles or electromagnetic waves.

Radioactive Element - An element whose atoms have unstable nuclei that stabilizes itself by giving off radiation.

Radioactive Waste - Materials left over from making nuclear energy. Radioactive waste can harm people and the environment if it is not stored safely.

Radioactivity - The property possessed by some elements, such as uranium, of giving off alpha, beta, or gamma rays.

Reactor Core - Part of a nuclear power station - the structure inside which fission occurs in millions of atomic nuclei, producing huge amounts of heat energy.

Receiver Panel (Solar) - A panel that contains a battery of solar cells.

Recycling - The process of converting materials that are no longer useful as designed or intended into a new product.

Refinery - An industrial plant that heats crude oil (petroleum) so that is separates into chemical components, which are then made into more useful substances.

Refined Petroleum Products - Refined petroleum products include but are not limited to gasoline, kerosene, distillates (including No. 2 fuel oil), liquefied petroleum gas, asphalt, lubricating oils, diesel fuels, and residual fuels.

Refrigeration - To make or keep food cold or cool by using a refrigerator.

Renewable Energy Sources - Fuels that can be easily made or "renewed." We can never use up renewable fuels. Types of renewable fuels are hydropower (water), solar, wind, geothermal, and biomass. .

Residential Sector (of the Economy) - The part of the economy having to do with the places people stay or live. The residential sector is made up of homes, apartments, condominiums, etc.

S

Semiconductor - Any material that has a limited capacity for conducting an electric current. Semiconductors are crystalline solids, such as silicon, that have an electrical conductivity between that of a conductor and an insulator.

Shaft mine - A mine that reaches the coal bed by means of a vertical shaft.

Short ton - A unit of weight equal to 2,000 pounds, often used to measure coal. See our Energy Calculator.

Solar Cell - An electric cell which changes radiant energy from the sun into electrical energy by the photovoltaic process.

Solar Dish - A device that receives radiation collected by motorized collectors which track the sun. The collectors focus the radiation the energy at a focal point of the dish.

Solar Energy - The radiant energy of the sun, which can be converted into other forms of energy, such as heat or electricity.
See our brief sections on: Solar Energy and Photovoltaic.

Solar Power Tower - The conceptual method of producing electrical energy from solar rays. It involved the focusing of a large number of solar rays on a single source (boiler), usually located on an elevated tower, to produce high temperatures. A fluid located in or passed through the source changes into steam and used in a turbine generator to produce electrical energy.

Solar spectrum - The total distribution of electromagnetic radiation emanating from the sun.

Solar Thermal Heating System - Systems using concentrating collectors to focus the sun's radiant energy onto or into receivers to produce heat.

Space Heating - The use of energy to generate heat for warmth in housing units using space-heating equipment. The equipment could be the main space-heating equipment or secondary space-heating equipment.

Spectrum of Electromagnetic Radiation - The name that scientists give to a bunch of types of radiation when they want to talk about them as a group. The types of radiation include the full range of frequencies, from radio waves to gamma waves, which characterize light.

Spent Fuel - Irradiated fuel that is permanently discharged from a nuclear reactor. Except for possible reprocessing, this fuel must eventually be removed from its temporary storage location at the reactor site and placed in a permanent repository. Spent fuel is typically measured either in metric tons of heavy metal (i.e., only the heavy metal content of the spent fuel is considered) or in metric tons

of initial heavy metal (essentially, the initial mass of the fuel before irradiation). The difference between these two quantities is the weight of the fission products.
See our brief sections on: Nuclear Energy, Nuclear Power Milestones and Electricity Milestones.

Steam - Water in vapor form; used as the working fluid in steam turbines and heating systems.

Steam Generator - A generator in which the prime movers (turbines) are powered by steam.

Superconductivity - The abrupt and large increase in electrical conductivity exhibited by some metals as the temperature approaches absolute zero.

Surface Mine - A coal-producing mine that is usually within a few hundred feet of the surface. Earth above or around the coal (overburden) is removed to expose the coal bed, which is then mined with surface excavation equipment, such as draglines, power shovels, bulldozers, loaders, and augers. It may also be known as an area, contour, open-pit, strip, or auger mine.

T

Tank Farm - An installation used by trunk and gathering pipeline companies, crude oil producers, and terminal operators (except refineries) to store crude oil.

Tanker and Barge - Vessels that transport crude oil or petroleum products.

Tesla Coil - A device for producing a high-frequency, high-voltage electric current.

Thermal Energy - The total potential and kinetic energy associated with the random motions of the molecules of a material.

Thermostat - A device that adjusts the amount of heating and cooling produced and/or distributed by automatically responding to the temperature in the environment.

Transformer - A device which converts the generator's low-voltage electricity to higher-voltage levels for transmission to the load center, such as a city or factory.

Transmission (Electric) - The movement or transfer of electric energy over an interconnected group of lines and associated equipment between points of supply and points at which it is transformed for delivery to consumers or is delivered to other electric systems. Transmission is considered to end when the energy is transformed for distribution to the consumer.

Transmission Line - A set of conductors, insulators, supporting structures, and associated equipment used to move large quantities of power at high voltage, usually over long distances between a generating or receiving point and major substations or delivery points.

Transmission System (Electric) - An interconnected group of electric transmission lines and associated equipment for moving or transferring electric energy in bulk between points of supply and points at which it is transformed for delivery over the distribution system lines to consumers or is delivered to other electric systems.

Turbine - A device which blades, which is turned by a force, e.g. that of wind, water , or high pressure steam. The mechanical energy of the spinning turbine is converted into electricity by a generator.

)Transportation Sector (of the Economy - The part of the economy having to do with the how people and goods are transported (moved) from place to place.. The transportation sector is made up of automobiles, airplanes, trucks, and ships. trains, etc.
See our brief section on: Transportation and Transportation Milestones.

U

Underground Mine - A mine where coal is produced by tunneling into the earth to the coal bed, which is then mined with underground mining equipment such as

cutting machines and continuous, long wall, and short wall mining machines. Underground mines are classified according to the type of opening used to reach the coal, i.e., drift (level tunnel), slope (inclined tunnel), or shaft (vertical tunnel).

Uranium - A heavy, naturally-occurring, radioactive element.
See our brief sections on: Nuclear Energy, Nuclear Power Milestones and Electricity Milestones.

Uranium Fuel Cycle - The series of steps involved in supplying fuel for nuclear power reactors. It includes mining, refining, the making of fuel elements, their use in a reactor, chemical processing to recover spent (used) fuel, re-enrichment of the fuel material, and remaking into new fuel elements.

Utility Generation - Generation by electric systems engaged in selling electric energy to the public.

V

Vehicle Fuel Consumption - Vehicle fuel consumption is computed as the vehicle miles traveled divided by the fuel efficiency reported in miles per gallon (MPG). Vehicle fuel consumption is derived from the actual vehicle mileage collected and the assigned MPGs obtained from EPA certification files adjusted for on-road driving. The quantity of fuel used by vehicles.

Volcanic Energy - Energy produced from volcanic action.
See our brief sections on: Geothermal Energy and Geothermal Energy Milestones.

Volt (V) - The volt is the International System of Units (SI) measure of electric potential or electromotive force. A potential of one volt appears across a resistance of one ohm when a current of one ampere flows through that resistance. Reduced to SI base units, 1 V = 1 kg times m2 times s-3 times A-1 (kilogram meter squared per second cubed per ampere).

Voltage - The difference in electrical potential between any two conductors or between a conductor and ground. It is a measure of the electric energy per electron that electrons can acquire and/or give up as they move between the two conductors.

Voltaic Electricity - Electricity produced by chemical action.

W

Waste - Municipal solid waste, landfill gas, methane, digester gas, liquid acetonitrile waste, tall oil, waste alcohol, medical waste, paper pellets, sludge waste, solid byproducts, tires, agricultural byproducts, closed loop biomass, fish oil, and straw.

Waste Energy - Municipal solid waste, landfill gas, methane, digester gas, liquid acetonitrile waste, tall oil, waste alcohol, medical waste, paper pellets, sludge waste, solid byproducts, tires, agricultural byproducts, closed loop biomass, fish oil, and straw used as fuel.
See our brief sections on: Waste Energy , Waste Energy Milestones, and Waste-to-Energy Plant Visit.

Water Cycle - Water constantly moves through a vast global cycle, in which it evaporates from lakes and oceans, forms clouds, precipitates as rain or snow, then flows back to the ocean. The energy of this water cycle, which is driven by the sun, is tapped most efficiently with hydropower.

Water Heater - An automatically controlled, thermally insulated vessel designed for heating water and storing heated water at temperatures less than 180 degrees Fahrenheit.

Water Turbine - A turbine that uses water pressure to rotate its blades. Primarily used to power an electric generator.

Watt - A metric unit of power, usually used in electric measurements, which gives the rate at which work is done or energy used. See our section on Measuring Electricity.

Wavelength - The distance, measured in the direction of progression of a wave, from any given point to the next point in the same phase.

Well - A hole drilled in the earth for the purpose of (1) finding or producing crude oil or natural gas; or (2) producing services related to the production of crude or natural gas.

Wellhead - The point at which the crude (and/or natural gas) exits the ground.

Wind - The term given to any natural movement of air in the atmosphere. A renewable source of energy used to turn turbines to generate electricity.
See our brief sections on: Wind Energy and Wind Energy Milestones.

Wind Machine - Devices powered by the wind that produce mechanical or electrical power.

Wind Tower - Devices, some as tall as 120 feet, which lift wind turbine blades high above the ground to catch stronger wind currents.

Wood and Waste (as used at electric utilities) - Wood energy, garbage, bagasse (sugarcane residue), sewerage gas, and other industrial, agricultural, and urban refuse used to generate electricity for distribution.

Wood Energy - Wood and wood products used as fuel, including round wood (cord wood), limb wood, wood chips, bark, sawdust, forest residues, charcoal, pulp waste, and spent pulping liquor.

XYZ

Yellowcake: A natural uranium concentrate that takes its name from its color and texture. Yellowcake typically contains 70 to 90 percent U_3O_8 (uranium oxide) by

weight. It is used as feedstock for uranium fuel enrichment and fuel pellet fabrication.

See a yellowcake picture.