



CHAPTER 31

Glossary of Energy Terms

Acid rain: Acid rain describes acidic compounds that fall out of the atmosphere, causing a variety of ground-level environmental effects. Acid rain can harm forests and soils, fish and wildlife and human health. Acid rain is caused primarily by emissions of sulfur dioxide and nitrogen oxides.

Air pollution control systems (APCS): APCS are used to eliminate or reduce airborne pollutants such as smoke, ash, dust, fly, sulfur, nitrogen oxides, carbon monoxide, odors and hydrocarbons. Some APCS include nitrogen oxide control devices, flue-gas particulate collectors and desulfurization units.

Alternative fuels: For transportation purposes, these include methanol, denatured ethanol and other alcohols, and fuels made with propane, hydrogen, coal-derived liquids and biological materials such as soy diesel. Alternative fuels also include energy derived from wind and solar power and any other fuels that are not substantially petroleum-based.

Ampere: The basic unit of electric current adopted under the Systeme International d'Unites. Commonly known as an "Amp." See also *Joule* and *Watt*.

Anaerobic: Meaning "in the absence of oxygen." In such environments, microscopic organisms can break down organic material such as manure.

Attainment area: A geographic region where the concentration of a specific air pollutant does not exceed federal standards.

Average megawatt (MWa or aMW): One megawatt of capacity produced continuously over a period of one year. $1 \text{ aMW} = 1 \text{ MW} \times 8760 \text{ hours/year} = 8,760 \text{ MWh} = 8,760,000 \text{ kWh}$.

Bcf: Billion cubic feet.

Biodegradable: Capable of decomposing rapidly under natural conditions.

Biodiesel: A biofuel produced through transesterification, a process in which organically derived oils are combined with alcohol (ethanol or methanol) in the presence of a catalyst to form ethyl or methyl ester. Biomass-derived ethyl or methyl esters can be blended with conventional diesel fuel or used on their own (100 percent biodiesel). Biodiesel can be made from soybean or rapeseed oils, animal fats, waste vegetable oils or microalgae oils. See also *Renewable energy*.

Biofuel: Gas or liquid fuels made from plant materials rather than petroleum products. Ethanol, biodiesel and methanol are biofuels. See also *Ethanol*, *Grain alcohol* and *Renewable energy*.

Biogas: A combustible gas derived from decomposing biological waste. Biogas normally consists of 50 to 60 percent methane.

Biomass fuel: Liquid, solid or gaseous fuel produced by the conversion of biomass. See also *Liquefaction*.

Biomass: Renewable organic matter such as agricultural crops and residue, wood and wood waste, animal waste, aquatic plants and the organic components of municipal and industrial wastes.

Boiler: A device for generating hot water or steam for power or heating purposes. Heat from a combustion source is transmitted to a fluid contained within tubes in the shell of the boiler. This heated fluid is delivered to an end use at a desired quality, temperature and pressure.

British thermal unit (Btu): A unit of heat energy equal to the heat needed to raise the tem-



perature of one pound of water one degree Fahrenheit at one atmosphere pressure (sea level). See also *Kilowatt hour (kWh)*.

Butane: A gas derived from natural gas or crude oil. Butane is a common component of gasoline and liquefied petroleum gas.

Capacity factor: The ratio of the energy produced by a generating unit in a given period of time to the energy that would have been produced at continuous full power operation during the same period.

Capacity: The maximum power that a machine or system can produce or carry safely. Capacity is the maximum instantaneous output of a resource under specified conditions. The capacity of generating equipment generally is expressed in kilowatts or megawatts.

Carbon dioxide (CO₂): An atmospheric gas formed by the burning of carbon-based materials. CO₂ is also produced by the respiratory systems of most of the world's life forms. Humans and animals exhale it; plants use it for photosynthesis. CO₂ is the world's most common greenhouse gas.

Carbon monoxide (CO): A colorless, odorless, poisonous gas produced when the carbon in fossil fuels is not entirely burned during combustion.

Carbon sink: A biosystem, such as a forest or an ocean, which absorbs carbon dioxide.

Carbon sequestration: The absorption and storage of carbon dioxide from the atmosphere. Carbon sequestration occurs naturally in plants.

Casinghead gas: Natural gas co-produced with crude oil from an underground formation.

Cellulosic ethanol: Conventional ethanol is derived from soft starches such as corn, while cellulosic ethanol is made from a wide variety of cellulose plant fiber, including stalks, grain straw, switchgrass, trees, and even municipal waste.

Clean Air Act (CAA): Federal law establishing ambient air quality emission standards

for implementation by participating states. Originally enacted in 1963, the CAA was last amended in 1990. The CAA includes vehicle emission standards regulating the emission of criteria pollutants (lead, ozone, carbon monoxide, sulfur dioxide, nitrogen oxides and particulate matter). The 1990 amendments added reformulated gasoline requirements and oxygenated gasoline provisions.

CLEAN Energy Act of 2007 or the Energy Independence and Security Act of 2007: This act is intended to move the U.S. toward greater energy independence and security; increase the production of clean renewable fuels; protect consumers; increase the energy efficiency of products, buildings and vehicles; promote research on and the deployment of greenhouse gas capture and storage options; and improve the energy performance of the federal government.

Climate change: A term used for all forms of weather variances brought about by natural causes such as volcanic eruptions or human causes such as industrial pollution. See also *global warming*.

Coal: A fossil fuel composed mostly of carbon with traces of other elements. Coal is found in seams that can be extracted either by surface or underground mining.

Cofiring: The combustion or cogasification of coal and biomass, or the combustion of coal with biomass-derived fuel gas.

Cogeneration: See *Combined heat and power (CHP)*.

Combined heat and power (CHP): The simultaneous production of electricity and heat from a single fuel source, such as natural gas, biomass, biogas, coal, waste heat or oil. Also known as cogeneration.

Combustion gases: Gases released by burning.

Combustion: Burning. The transformation of biomass fuel into heat, chemicals and gases through a chemical combination of hydrogen and carbon in fuel with oxygen in the air.



Compressed natural gas (CNG): Natural gas that has been compressed under high pressure (typically 2,000 to 3,600 pounds per square inch). See also *natural gas*.

Competitive Renewable Energy Zones (CREZs): Areas of the state identified as having the best renewable energy resources and requiring transmission infrastructure to deliver that energy to customers.

Concentrating Solar Power (CSP): Generally refers to large-scale solar thermal technology systems that use mirrors or reflectors to focus sunlight to heat a fluid and make steam, which then is used to generate electricity. See also *solar energy and parabolic trough*.

Conservation: Efficiency of energy use, production, transmission or distribution that results in a decrease of energy consumption while providing the same level of service.

Corporate Average Fuel Economy (CAFE): Federal standards enacted in 1975 for fuel economy in motor vehicles. The average of city and highway fuel economy test results weighted by a manufacturer for its car or truck fleet.

Crude oil: A mixture of liquid or gaseous hydrocarbons found in natural underground reservoirs. (Crude oil may exist in gaseous phase underground but become liquid at normal atmospheric pressure after being recovered from oil well or casinghead gas in lease separators.) Crude oil also may be recovered as a liquid from natural gas wells or as liquid products from tar sands, oil sands gilsonite and oil shale or as drip gases, which are a natural form of gasoline. Crude oil can be refined to produce heating oils, gasoline, diesel, jet fuels, lubricants, asphalt, ethane, propane, butane and many other products.

Decommissioning: Refers to the dismantling and removal of wind turbines at the end of their useful lives. See also *wind turbines and wind farms*.

Dekatherm: A metric unit of heat measurement equal to 1 million *BTUs*.

Deregulation: In the context of energy, the congressional or legislative repeal of laws requiring federal or state approval of retail rates charged by natural gas pipelines or electricity providers. Because these rates also included the costs of facilities built by these providers, deregulation means that the costs and financial risks of new facilities are borne by the investor, not the customer. *FERC* and *PUC* are two agencies that once regulated industries and now oversee industry retail markets to ensure fair competition.

Diesel: A petroleum-based fuel used in engines ignited by compression rather than spark. Diesel fuels are heavier and produce higher emissions than conventional gasoline. They also provide more power per unit of volume.

Diesel engine: A compression-ignition piston engine in which fuel is ignited by injecting it into air that has been heated (unlike a spark-ignition engine).

Digester: An airtight vessel or enclosure in which bacteria decomposes biomass in water to produce biogas.

Distillates: Light fuels or oil produced by boiling crude oil. Diesel and heating oil are common distillates.

Distributed power: Energy that can be generated on site, reducing or eliminating costs associated with fuel transportation and electricity transmission and distribution.

Dry ton: 2,000 pounds of material dried to a constant weight.

E85: A blend of 15 percent gasoline and 85 percent denatured ethanol by volume.

eGRID: The Emissions & Generation Resource Integrated Database (eGRID) provides air emissions data for the electric power sector. It is based on available plant-specific data for all U.S. electricity plants that provide power to the electric grid and report data to the U.S. government. eGRID contains air emissions data for nitrogen oxides, sulfur dioxide, carbon dioxide and mercury.

**Electric Reliability Council of Texas (ERCOT):**

A nonprofit corporation under the supervision of the Public Utility Commission of Texas (PUC), ERCOT manages the state's largest electric power grid and marketplace by ensuring grid reliability, accommodation of scheduled energy transfers and the oversight of retail transactions. ERCOT is the only electricity grid in the nation contained entirely within a single state. See also *Public Utility Commission of Texas (PUC)*

Electricity: Electric current used as a power source.

Emissions: Waste substances released into the air or water.

Energy: The capacity of a physical system to do work.

Energy crops: Crops grown specifically for their fuel value. These include food crops such as corn and sugarcane and nonfood crops such as poplar trees and switchgrass. Currently, energy crops under development in the U.S. include short-rotation woody crops, which are fast-growing hardwood trees harvested in five to eight years, and herbaceous energy crops, such as perennial grasses that can be harvested annually after reaching full productivity in two to three years.

Energy Policy Act of 2005: This federal legislation established an energy research and development program covering energy efficiency; renewable energy; oil and gas; coal; American Indian energy; nuclear matters and security; vehicles and motor fuels, including ethanol; hydrogen; electricity; energy tax incentives; hydropower and geothermal energy; and climate change technology.

Enhanced Geothermal System (EGS): The recovery of subsurface heat to produce energy through technologies including engineered reservoirs (made by creating cracks in heated rock for water to circulate); geopressured-geothermal (using high-pressured brine to free hydrocarbons trapped in sedimentary layers, especially under the Gulf Coast); co-produced fluids (water mixed with fossil fuels in oil and gas fields); and low-quality, or low-temperature, conventional hydrothermal methods (as yet non-productive resources).

Enhanced Oil Recovery (EOR): The production of oil and gas by means other than natural pressure. EOR generally involves injecting water (or other fluids) or carbon dioxide underground near the target oil or gas reservoir. The pressure of the fluids or gases drives the hydrocarbon substances toward a conventional well, where they can be brought to the surface.

Ethanol: An alcohol compound with the chemical formula C_2H_5OH formed during sugar fermentation by yeast. Also known as grain alcohol. See also *biofuel* and *renewable energy*.

Fat: A water-soluble substance that is solid at room temperature. Fat belongs to a group of chemicals that are the main constituents of food derived from animal tissue, nuts and seeds. Fats are esters of glycerol and fatty acids.

Federal Energy Regulatory Commission

(FERC): An independent federal agency that regulates the interstate transmission of natural gas, oil, and electricity. FERC also regulates the construction of natural gas and hydropower projects.

Federal Water Pollution Control Act: A federal regulatory law administered by the states. The act created the National Pollution Discharge Elimination System (NPDES), which guides the means and methods of constructing pipelines or other facilities in or across water bodies.

Feedstock: One product used as an ingredient for another. For example, a refinery produces many fuels, oil and gases that are feedstocks in chemical or plastic manufacturing.

Fossil fuel: Solid, liquid or gaseous fuels formed in the ground after hundreds of millions of years by chemical and physical changes in plant and animal residues under high temperature and pressure. Oil, natural gas and coal are fossil fuels. They are also hydrocarbons.

Fuel cell: A device that converts the chemical energy of a fuel directly to electricity and heat, without combustion.

Fuel cycle: The series of steps required to produce electricity. The fuel cycle includes mining or



otherwise acquiring the raw fuel source, processing and cleaning the fuel, transportation, electricity generation, waste management and plant decommissioning.

Fuel: Any material that can be converted to energy.

Furnace: An enclosed chamber or container used to burn fuel or biomass in a controlled manner to produce heat for space or process heating.

Futures: A contract to buy a specific commodity at a future date and a guaranteed “strike” price. In the U.S., oil and gas futures contracts are traded on the New York Mercantile Exchange (NYMEX) and quoted extensively in daily financial news. Oil futures contracts are generally for West Texas Intermediate (WTI) grade crude delivered at an oil pipeline nexus near Cushing, Oklahoma. Natural gas futures contracts are delivered at any number of pipeline interconnections, the largest of which is the Henry Hub near Erath, Louisiana.

FutureGen Alliance: A multibillion-dollar public-private partnership organized to construct and operate a state of the art, non-polluting coal-fired electricity generation plant. In January 2008, DOE decided to withdraw funding for the FutureGen project. See Chapter 7 for more information.

Gas engine: A piston engine that uses gaseous fuel rather than gasoline. Fuel and air are mixed before they enter cylinders; ignition occurs with a spark.

Gas turbine (combustion turbine): A turbine that converts the energy of hot compressed gases (produced by burning fuel in compressed air) into mechanical power. Gas turbines are often fired by natural gas or fuel oil.

Gasification: A chemical or heat process to convert a solid fuel to a gaseous form.

Gasoline: A fuel refined from oil that is used in internal combustion engines.

Generator: A machine used for converting rotating mechanical energy to electrical energy.

Generator nameplate capacity: The maximum rated output of a generator under specific conditions designated by the manufacturer. Generator nameplate capacity is usually indicated in units of kilovolt-amperes (kVA) and in kilowatts (kW) on a nameplate physically attached to the generator.

Geopressed: Substances such as methane or water within the earth’s crust that are forced upward by geologic pressures.

Geothermal energy: Energy derived from the natural heat of the Earth contained in hot rocks, hot water, hot brines or steam.

Global warming: A gradual increase in the earth’s average surface temperature over time. The popular definition is warming caused by human activity such as exhaust from cars and power plants. The carbon dioxide in these exhausts traps the sun’s heat. See also *climate change*.

Grain alcohol: See *ethanol* and *biofuel*.

Greenhouse gases: Gases that trap the heat of the sun in the Earth’s atmosphere, producing a greenhouse effect. The two major greenhouse gases are water vapor and carbon dioxide. Other greenhouse gases include methane, ozone, chlorofluorocarbons and nitrous oxide.

Gross National Product (GNP): The value of all the goods and services produced in a national economy, plus the value of the goods and services imported, less the goods and services exported.

Gross State Product (GSP): The total value added in production in a state’s economy in a year. Broadly, it equals the total value of goods and services produced less the cost of goods and services used in the production process.

Groundwater: Water found underground in soil or permeable rock, often feeding springs and wells.

Horsepower (electrical horsepower; hp): A unit for measuring the rate of mechanical energy output. The term is usually applied to engines or electric motors to describe maximum output. 1 hp = 745.7 Watts = 0.746 kW = 2,545 Btu/hr.



Hydrocarbon: Any chemical compound containing only hydrogen and carbon.

Hydrogen: A highly reactive colorless gas represented by the symbol H. Hydrogen is the lightest element and the most abundant in the universe. Water and most organic compounds contain hydrogen.

Incineration: Waste destruction by controlled burning at high temperatures.

Independent power producer: A power production facility that is not part of a regulated utility.

Integrated Waste Management (IWM): A method employing multiple waste control and disposal methods such as source reduction, recycling, reuse, incineration, and land filling, to minimize the environmental effect of waste. See also *Municipal Solid Waste*.

Internal combustion engine: An engine that has one or more cylinders in which the process of combustion occurs, converting energy released from the rapid burning of a fuel-air mixture into mechanical energy.

In situ leach mining (ISL mining): The recovery, by chemical leaching, of the valuable components of a mineral deposit without physical extraction of the mineralized rock from the ground. Also referred to as solution mining. See also *solution mining*.

Insolation: A term referring to the amount of solar radiation that strikes the planet's surface over some period of time.

Investor-owned utility (IOU): A private power company owned by and responsible to its shareholders.

Jatropha: A plant that originated in South America that grows in tropical and subtropical regions on non-arable, marginal and waste land. It can be crushed to produce oil that is used to make biodiesel.

Joule: One joule is equal to one watt of power radiated or dissipated for one second. See also *Ampere* and *Watt*.

Kilowatt-Ampere (kVa): A unit of power equal to 1,000 volt-amperes. It is the mathematical product of the volts and amperes in an electrical circuit.

Kilowatt hour (kWh): A measure of energy equivalent to the expenditure of one kilowatt for one hour. For example, 1 kWh will light a 100-watt light bulb for 10 hours. One kWh = 3,413 Btu. See also *British thermal unit*.

Kilowatt (kW): A measure of electrical power equal to 1,000 watts. 1 kW = 3,413 Btu/hr = 1.341 horsepower.

Landfill gas: Gas generated by decomposition of organic material at landfill disposal sites. Landfill gas is approximately 50 percent methane.

Liquefaction: The process of converting biomass from a solid to a liquid. The conversion process is a chemical change that takes place at elevated temperatures and pressures. See also *biomass fuel*.

Liquefied natural gas (LNG): Natural gas that has been pressurized and cooled to liquefy it for more efficient shipping and storage.

Liquefied petroleum gas (LPG): A product of petroleum gases; principally propane and butane, stored under pressure to keep it in a liquid state.

Logging residue: Materials left on the ground after logging, thinning, or other forest operations, such as treetops, broken branches, uprooted stumps, defective logs and bark.

Long ton (shipping ton): 2,240 pounds. Commonly used in Great Britain. See also *short ton*, *metric ton* and *ton (or tonne)*.

Megawatt (MW): The electrical unit of power that equals 1 million Watts (1,000 kW).

Mercury: A toxic heavy metal emitted during the combustion of fossil fuels, especially coal.

Methane: The simplest hydrocarbon—a gas with a chemical formula of CH₄. A naturally occurring light gas that, in its natural state, is odorless, colorless and lighter than air. Meth-



ane most commonly is produced from underground reservoirs, but also can be produced by the aerobic decomposition of any organic material. Methane is the largest component of the natural gas used as an energy source in residences, businesses and factories.

Metric ton (or tonne): 1000 kilograms. 1 metric ton = 2,204.6 lb = 1.023 short tons. See also *ton*, *long ton (shipping ton)* and *short ton*.

Mill residues: Wood materials and bark generated at manufacturing plants when harvested wood products are processed into primary wood products, including slabs, edgings, trimmings, sawdust, veneer clippings and cores and pulp screenings.

MMBtu: One million British thermal units (Btu).

MMcf: One million cubic feet.

Municipal Solid Waste (MSW): Trash or garbage. See also *Integrated Waste Management (IWM)*.

National Energy Modeling System (NEMS): NEMS is a computer-based modeling system of U.S. energy markets through 2025, designed and implemented by EIA. NEMS projects energy, economic, environmental and security impacts on the U.S. of energy policies and energy markets.

Natural gas: A mixture of gaseous hydrocarbons, primarily methane, occurring naturally in the earth and used as fuel. See also *compressed natural gas (CNG)*.

Net Metering: A utility practice that allows owners of qualifying renewable generation resources to capture the value of electric energy they produce beyond their own needs. For example, owners of solar energy systems and small-scale wind turbine projects can sell excess electricity back to the utility and buy more power only as they need it.

Nitrogen oxide (NO_x): Regulated air pollutants, primarily NO and NO₂. Nitrogen oxides are precursors to the formation of smog and contribute to the formation of acid rain.

Nonattainment area (NAA): A geographic area in which air quality is worse than that allowed by federal air pollution standards.

Non-renewable energy: Oil, natural gas, coal or another natural resource, such as a metallic ore, that is not replaceable after it has been used.

Nuclear reactor: An apparatus in which a heavy nucleus (such as uranium) splits into two lighter nuclei in a controlled chain reaction to produce heat energy. A reactor includes fissionable material as fuel, moderating material to control the fission; a heavy-walled pressure vessel to house reactor components; shielding to protect personnel; a system to conduct heat away from the reactor; and instrumentation for monitoring and controlling the reactor's systems.

Oxygenate: Adding oxygen to a fuel, especially gasoline, to make it burn more efficiently.

Parabolic trough: A container concentrating solar power systems consisting of a linear, parabolic-shaped reflector that focuses the sun's energy on a receiver pipe, heating a transfer fluid flowing through the pipe; the transfer fluid then generates superheated steam that is fed to a turbine and electric generator to produce electricity. See also *concentrating solar power (CSP)* and *solar energy*.

Particulate matter (PM): Small pieces of matter suspended in the air measured in microns, which are denoted by subscript; i.e. particulate matter that is 10 microns wide is PM₁₀. Particulate matter can be released naturally or through human activities such as burning fossil fuels in vehicles or in power plants.

Passive solar energy system: Solar heating or cooling that uses natural energy flows to transfer heat.

Petrochemical: A compound made from petroleum or natural gas, such as benzene, ammonia, acetylene and polystyrene.

Petroleum: A name given to a class of gaseous, liquid and solid hydrocarbons occurring naturally beneath the earth's surface.



Photovoltaic: A system that converts direct sunlight to electricity using semi-conductor materials.

Pollution: The placement into the environment of contaminants that cause harm or discomfort to humans or other living organisms, or damage the environment. Pollution can be in the form of chemical substances or noise, heat or light. Pollution is considered a contaminant when it is above natural levels.

Power: The rate of transfer or absorption of energy per unit of time in a system.

Price-Anderson Nuclear Industries Indemnity Act (Price-Anderson Act): Federal legislation, first passed in 1957 governing liability-related issues for all non-military nuclear facilities constructed before 2026. The act partially indemnifies the nuclear industry against liability claims arising from nuclear incidents while still ensuring compensation coverage for the public. The act establishes a no fault insurance-type system with the first \$10 billion industry-funded. Claims above \$10 billion are covered by the U.S. government. Price-Anderson was renewed in 2005 for a 20-year period.

Production: Processes and methods used in transformation of tangible inputs (raw materials or semi-finished goods) and intangible inputs (ideas and information) into goods or services.

Production Tax Credit (PTC): A federal subsidy that currently provides a 10-year corporate income tax credit of 2.0 cents per kWh, effectively reducing the cost of eligible energy technologies (including wind, landfill gas, biomass, hydroelectric, geothermal, electric, municipal solid waste, some coal and small hydroelectric sources).

Propane: A flammable, colorless hydrocarbon gas used as a fuel, propellant and refrigerant. Its chemical formula is C_3H_8 .

Psi: Pounds per square inch. PSI measures pressure.

Public Utility Commission of Texas (PUC): Formed in 1975 by the Legislature as a rate

regulatory body, PUC now, since deregulation, oversees electric and telecommunications companies to ensure Texas consumers have access to competitive utility services. The PUC oversees competition in the wholesale and retail electricity and telecommunications markets, and regulates rates and services of non-competitive electric utilities and local exchange companies. See also *Electric Reliability Council of Texas (ERCOT)*.

Pulverized: Reduced to dust or powder by crushing, pounding or grinding.

Quad: A quadrillion, or 1,000,000,000,000,000 (10^{15}). U.S. energy production and consumption often is described using this unit of measurement; for instance, a quadrillion *Btu* is called one quad.

Railroad Commission of Texas (RRC): A Texas state agency that regulates oil and natural gas exploration and production, pipeline transporters, natural gas utilities, rail safety and surface mining operations.

Rankine Cycle: A thermodynamic cycle that can be used to calculate the ideal performance of a heat engine that uses a condensable vapor as its working fluid.

Reactor: A facility that contains a controlled nuclear fission chain reaction. Also see *nuclear reactor*.

Reclamation: The conversion of unusable land into land suitable for farming or other uses; or the extraction of useful substances from waste or refuse.

Recycling: A process or treatment used to make waste materials suitable for reuse.

Refinery: A facility used to process crude oil or metals.

Refinery gain: A term used in the petrochemical industry to describe the 44.6 gallons of refined products that are derived from a 42-gallon barrel of crude oil.

Refinery gas: A generic term for gases produced by refining crude oil, also known as "still



gases.” These gases include methane, butane, ethane and propane.

Renewable energy: Energy that comes from sources that can be replaced, such as sun, wind, waves, biofuels. See also ethanol, biodiesel, biofuels and solar energy.

Renewable Energy Credits (RECs): Tradable energy credits that competitive electricity retailers can purchase or trade among one another to meet their individual renewable energy requirements. (One REC or credit represents one megawatt-hour of qualified renewable energy generated from a renewable energy resource.) In Texas, state law requires retail electric providers to acquire renewable energy based on their market share of electricity sales.

Renewable Portfolio Standard (RPS): A state policy requiring electricity providers engaged in the competitive market to acquire a minimum amount of electricity from renewable energy sources.

Reserves: Estimates of the volumes of oil and gas remaining in underground formations that are both economically and operationally recoverable.

Royalty: The compensation paid to the owner of an asset based on income earned by the asset’s user. For example, an oil company pays royalties to the owners of mineral rights.

Scrubber: A device to clean combustible gas or stack gas by the spraying of water.

Sequestration: The process of setting something apart. In energy and environmental terms, sequestration means capturing carbon dioxide emissions from large commercial facilities such as coal-fired electricity plants and injecting the emissions underground for permanent storage.

Short ton: 2,000 pounds. A ton, as commonly used in the U.S. and Canada. See also *long ton*, *metric ton* and *ton (or tonne)*.

Smog: A pollution phenomenon occurring primarily in cities that is attributable to industrial and vehicular sources.

Solar energy: Energy derived from sunlight. See also *concentrating solar power (CSP)*, *parabolic trough* and *renewable energy*.

Solid waste: Discarded materials other than fluids.

Solution mining: Another term for *in situ leach mining*.

Source Emission Reduction Plan (SERP): A contingency plan developed to reduce emissions during an air quality emergency.

Southeastern Reliability Council (SERC): Manages the electric power grid and marketplace by ensuring grid reliability, grid accommodation of scheduled energy transfers and overseeing retail transactions for the southeastern region of the U.S. Parts of southeastern Texas are within the SERC grid.

Southwest Power Pool (SPP): Manages the electric power grid for the southwestern region of the U.S., including parts of the Texas panhandle region.

Stripper well: An oil well producing fewer than 10 barrels per day.

Subsidy: Programs through which government or a public body provide a specific financial benefit to a private company, organization, or charity to help it function or pay expenses.

Surface water: Water naturally open to the atmosphere through lakes, ponds, reservoirs, rivers, and oceans.

Sulfur dioxide (SO₂): A compound and pollutant emitted by coal- and oil-fired power plants, steel mills, refineries, pulp and paper mills and nonferrous smelters. SO₂ can cause respiratory and cardiovascular harm, contribute to acid rain and impair visibility.

Sustainable: An ecosystem condition in which biodiversity, renewability and resource productivity are maintained over time.

Tax: Money levied by a government on its citizens for the operation of the government.



Tax credit: The term tax credit describes two different situations. The first is a partial payment already made towards taxes due. The second is a benefit paid through the tax system that increases net income to an individual.

Tcf: One trillion cubic feet.

Thermodynamics: The scientific study of the mutual conversion of heat and other forms of energy.

Ton (or tonne): 2,000 pounds; in the U.S., sometimes called a “short ton.” A metric or “long” ton (sometimes spelled “tonne”) is 1,000 kilograms, or 2,204.6 pounds. See also *metric ton*, *long ton* and *short ton*.

Toxic substances: A chemical or mixture of chemicals that presents a high risk of injury to human health or to the environment.

Transmission: The long-distance transport of a fuel or electricity. In regulatory terms, transmission is the segment between the fuel production or generation area and the consumption area.

Turbine: A machine for converting the heat energy in steam or high-temperature gas into mechanical energy. In a turbine, a high-velocity flow of steam or gas passes through successive rows of radial blades fastened to a central shaft.

Uranium: A heavy, silver-gray radioactive metal occurring in three isotopes. Its symbol is U. One isotope of uranium (U_{235}) is used as fuel in nuclear reactors and weapons.

Volatile organic compounds (VOC): Non-methane hydrocarbon gases. VOC are released during the combustion or evaporation of fuel.

Watt: The common base unit of power in the metric system. One watt equals one joule per second. One joule is the power developed in a circuit by a current of one ampere flowing through a potential difference of one volt. One watt = 3.413 Btu/hr. See also *Ampere* and *Joule*.

Western Electricity Coordinating Council

(WECC): Manages the electric power grid and marketplace by ensuring grid reliability, grid accommodation of scheduled energy transfers and overseeing retail transactions for the western region of the U.S. Portions of far West Texas are contained within WECC’s grid.

Wellhead: The area immediately surrounding the top of a well, or the top of the well casing.

West Texas Intermediate (WTI): A highly desirable grade of crude oil produced from West Texas oilfields. WTI is the benchmark U.S. domestic price of oil and widely quoted in financial publications.

Wind farms: Large, utility-scale turbines grouped together into power plants and connected to the electrical utility grid; their power is sold to utility customers. See also *decommissioning* and *wind turbines*.

Wind turbines: Converts the wind’s kinetic energy into mechanical power that a generator, in turn, converts into electricity. See also *decommissioning* and *wind farms*.

Wood waste: This includes bark, scrap lumber, sawdust, mixed soil and rock generated as waste material from log decks and milling facilities, inert construction and demolition wastes. Wood waste can also be ash from the burning of wood wastes from on-site, wood-fired boilers, kiln dryers and burners.