

# Glossary

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**Salable coal:** The shippable product of a coal mine or preparation plant. Depending on customer specifications, salable coal may be run-of-mine, crushed-and-screened (sized) coal, or the clean coal yield from a preparation plant.

**Salable natural gas:** Natural gas marketed under controlled quality conditions.

**Sales:** See [Energy sales](#).

**Sales for resale:** A type of wholesale sales covering energy supplied to other electric utilities, cooperatives, municipalities, and Federal and state electric agencies for resale to ultimate consumers.

**Sales for resale (electric):** A type of wholesale sales covering energy supplied to other electric utilities, cooperatives, municipalities, and Federal and state electric agencies for resale to ultimate consumers. [FERC definition](#)

**Sales to end users:** Sales made directly to the consumer of the product. Includes bulk consumers, such as agriculture, industry, and utilities, as well as residential and commercial consumers.

**Sales type:** Sales categories of sales to end-users and sales for resale.

**Sales volume (coal):** The reported output from Federal and/or Indian lands, the basis of royalties. It is approximately equivalent to production, which includes coal sold, and coal added to stockpiles.

**Salt gradient solar ponds:** These consist of three main layers. The top layer is near ambient and has low salt content. The bottom layer is hot, typically 160° F to 212° F (71° C to 100° C), and is very salty. The important gradient zone separates these zones. The gradient zone acts as a transparent insulator, permitting the sunlight to be trapped in the hot bottom layer (from which useful heat is withdrawn). This is because the salt gradient, which increases the brine density with depth, counteracts the buoyancy effect of the warmer water below (which would otherwise rise to the surface and lose its heat to the air). An organic Rankine cycle engine is used to convert the thermal energy to electricity.

**Sample (coal):** A representative fraction of a coalbed collected by approved methods, guarded against contamination or adulteration, and analyzed to determine the nature; chemical, mineralogic, and (or) petrographic composition; percentage or parts-per-million content of specified constituents; heat value; and possibly the reactivity of the coal or its constituents.

**Schedule:** A statement of the pricing format of electricity and the terms and conditions governing its applications.

**Scheduled outage:** The shutdown of a generating unit, transmission line, or other facility for inspection or maintenance, in accordance with an advance schedule.

**Scheduling coordinators:** Entities certified by the Federal Energy Regulatory Commission (FERC) that act on behalf of generators, supply aggregators (wholesale marketers), retailers, and customers to schedule the distribution of electricity.

**Scoop loading:** An underground loading method by which coal is removed from the working face by a tractor unit equipped with a hydraulically operated bucket attached to the front; also called a front-end loader.

**Screenings:** The undersized coal from a screening process, usually one-half inch or smaller.

**Seam:** A bed of coal lying between a roof and floor. Equivalent term to bed, commonly used by industry.

**Seasonal energy efficiency ratio (SEER):** Ratio of the cooling output divided by the power consumption. It is the Btu of cooling output during its normal annual usage divided by the total electric energy input in watt hours during the same period. This is a measure of the cooling performance for rating central air conditioners and central heat pumps. The appliance standards required a minimum SEER of 10 for split-system central air conditioners and for split-system central heat pumps in 1992. (The average heat pump or central air conditioner sold in 1986 had an SEER of about 9.)

**Seasonal pricing:** A special electric rate feature under which the price per unit of energy depends on the season of the year.

**Seasonal rates:** Different seasons of the year are structured into an electric rate schedule whereby an electric utility provides service to consumers at different rates. The electric rate schedule usually takes into account demand based on weather and other factors.

**Seasonal units:** Housing units intended for occupancy at only certain seasons of the year. Seasonal units include units intended only for recreational use, such as beach cottages and hunting cabins. It is not likely that this type of unit will be the usual residence for a household, because it may not be fit for living quarters for more than half of the year.

**Seasoned wood:** Wood, used for fuel, that has been air dried so that it contains 15 to 20 percent moisture content (wet basis).

**Secondary heating equipment:** Space-heating equipment used less often than the main space-heating equipment.

**Secondary heating fuel:** Fuels used in secondary space-heating equipment.

**Sector:** See [Energy-use sectors](#)

**Securitization:** A proposal for issuing bonds that would be used to buy down existing power contracts or other obligations. The bonds would be repaid by designating a portion of future customer bill payments. Customer bills would be lowered, since the cost of bond payments would be less than the power contract costs that would be avoided.

**Securitize:** To aggregate contracts into one pool, which then offers shares for sale in the investment market. This strategy diversifies project risks from what they would be if each project were financed individually, thereby reducing the cost of financing.

**SEER:** See [Seasonal Energy Efficiency Ratio](#)

**Selective absorber:** A solar absorber surface that has high absorptance at wavelengths corresponding to that of the solar spectrum and low emittance in the infrared range.

**Self-Generator:** A plant whose primary product is not electric power, but does generate electricity for its own use or for sale on the grid; for example, industrial combined heat and power plants.

**Seller type:** Categories of major refiners and other refiners and gas plant operators.

**Semianthracite:** See [Anthracite](#)

**Semiconductor:** Any material that has a limited capacity for conducting an electric current. Certain semiconductors, including silicon, gallium arsenide, copper indium diselenide, and cadmium telluride, are uniquely suited to the photovoltaic conversion process.

**Separate metering:** Measurement of electricity or natural gas consumption in a building using a separate meter for each of several tenants or establishments in the building.

**Separative work unit (SWU):** The standard measure of enrichment services. The effort expended in separating a mass  $F$  of feed of assay  $x_f$  into a mass  $P$  of product assay  $x_p$  and waste of mass  $W$  and assay  $x_w$  is expressed in terms of the number of separative work units needed, given by the expression  $SWU = WV(x_w) + PV(x_p) - FV(x_f)$ , where  $V(x)$  is the "value function," defined as  $V(x) = (1 - 2x) \ln((1 - x)/x)$ .

**Septic tank:** A tank in which the solid matter of continuously flowing sewage is disintegrated by bacteria.

**Series connection:** A way of joining photovoltaic cells by connecting positive leads to negative leads; such a configuration increases the voltage.

**Series resistance:** Parasitic resistance to current flow in a cell due to mechanisms such as resistance from the bulk of the semiconductor material, metallic contacts, and interconnections.

**Service area:** The territory in which a utility system or distributor is authorized to provide service to consumers.

**Service provider:** See [Energy service provider](#)

**Service well:** A well drilled, completed, or converted for the purpose of supporting production in an existing field. Wells of this class also are drilled or converted for the following specific

purposes: gas injection (natural gas, propane, butane or fuel-gas); water injection; steam injection; air injection; salt water disposal; water supply for injection; observation; and injection for in-situ combustion.

**SF<sub>6</sub>:** See [Sulfur hexafluoride](#)

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

**Shakes/shingles:** Flat pieces of weather proof material laid with others in a series of overlapping rows as covering for roofs and sometimes the sides of buildings. Shakes are similar to wood shingles, but instead of having a cut and smoothly planed surface, shakes have textured grooves and a rough or "split" appearance to give a rustic feeling.

**Shale Gas:** Natural gas produced from wells that are open to shale formations. Shale is a fine-grained, sedimentary rock composed of mud from flakes of clay minerals and tiny fragments (silt-sized particles) of other materials. The shale acts as both the source and the reservoir for the natural gas. See [natural gas](#).

**Shallow pitting:** Testing a potential mineral deposit by systematically sinking small shafts into the earth and analyzing the material recovered.

**Shell storage capacity:** The design capacity of a petroleum storage tank which is always greater than or equal to working storage capacity.

**Short circuit:** An electric current taking a shorter or different path than intended.

**Short circuit current:** The current flowing freely through an external circuit that has no load or resistance; the maximum current possible.

**Short purchases:** A single shipment of fuel or volumes of fuel purchased for delivery within 1 year. Spot purchases are often made by a user to fulfill a certain portion of energy requirements, to meet unanticipated energy needs, or to take advantage of low-fuel prices.

**Short term sales:** Any short-term purchase covering a time period of 2 years or less. Purchases from intrastate pipelines pursuant to Section 311(b) of the NGPA of 1978 are classified as short-term sales, regardless of the stated contract term.

**Short ton (st):** A unit of weight equal to 2,000 pounds.

**Short-term debt or borrowings:** Debt securities or borrowings having a maturity of less than one year.

**Short-term purchase:** A purchase contract under which all deliveries of materials are scheduled to be completed by the end of the first calendar year following the contract-signing year. Deliveries can be made during the contract year, but deliveries are not scheduled to occur beyond the first calendar year thereafter.

**Shortwall mining:** A form of underground mining that involves the use of a continuous mining machine and movable roof supports to shear coal panels 150 to 200 feet wide and more than half a mile long. Although similar to longwall mining, shortwall mining is generally more flexible

because of the smaller working area. Productivity is lower than with longwall mining because the coal is hauled to the mine face by shuttle cars as opposed to conveyors.

**Shrinkage:** The volume of natural gas that is transformed into liquid products during processing, primarily at natural gas liquids processing plants.

**Shut in:** Closed temporarily; wells and mines capable of production may be shut in for repair, cleaning, inaccessibility to a market, etc.

**Shut-in royalty:** A royalty paid by a lessee as compensation for a lessor's loss of income because the lessee has deferred production from a property that is known to be capable of producing minerals. Shut in may be caused by a lack of a ready market, by a lack of transportation facilities, or by other reasons. A shut-in royalty may or may not be recoverable out of future production.

**Shutdown date:** Month and year of shutdown for fuel discharge and refueling. The date should be the point at which the reactor became subcritical.

**SI:** International System of Units (Système international d'unités)

**SIC:** See [Standard Industrial Classification](#)

**Sidetrack drilling:** This is a remedial operation that results in the creation of a new section of well bore for the purpose of (1) detouring around junk, (2) re-drilling lost holes, or (3) straightening key seats and crooked holes. Directional "side-track" wells do not include footage in the common bore that is reported as footage for the original well.

**Siding:** An exterior wall covering material made of wood, plastic (including vinyl), or metal. Siding is generally produced in the shape of boards and is applied to the outside of a building in overlapping rows.

**Silicon:** A semiconductor material made from silica, purified for photovoltaic applications.

**Silt:** Waste from Pennsylvania anthracite preparation plants, consisting of coarse rock fragments containing as much as 30 percent small-sized coal; sometimes defined as including very fine coal particles called silt. Its heat value ranges from 8 to 17 million Btu per short ton. Synonymous with **culm**.

**Silt, culm, refuse bank, or slurry dam mining:** A mining operation producing coal from these sources of coal.

**Single crystal silicon:** An extremely pure form of crystalline silicon produced by dipping a single crystal seed into a pool of molten silicon under high vacuum conditions and slowly withdrawing a solidifying single crystal boule (rod) of silicon. The boule is sawed into thin silicon wafers and fabricated into single-crystal photovoltaic cells.

**Single crystal silicon (Czochralsky):** Silicon cells with a well-ordered crystalline structure consisting of one crystal (usually obtained by means of the Czochralsky growth technique and involving in-got slicing), composing a module. Ribbon silicon is excluded.

**Single purpose project:** A hydroelectric project constructed only to generate electricity.

**Single-circuit line:** A transmission line with one electric circuit. For three-phase supply, a single circuit requires at least three conductors, one per phase.

**Single-family housing unit:** See [housing structure/housing unit](#), specifically under Residential Sector heading.

**Sinter:** A chemical sedimentary rock deposited by precipitation from mineral waters, especially siliceous sinter and calcareous sinter.

**Site characterization:** An onsite investigation at a known or suspected contaminated waste or release site to determine the extent and type(s) of contamination.

**Site energy:** The Btu value of energy at the point it enters the home, sometimes referred to as "delivered" energy. The site value of energy is used for all fuels, including electricity.

**Site energy consumption:** The Btu value of energy at the point it enters the home, building, or establishment, sometimes referred to as "delivered" energy.

**Site-specific information DSM program assistance:** ADSM (demand-side management) assistance program that provides guidance on energy efficiency and load management options tailored to a particular customer's facility; it often involves an on-site inspection of the customer facility to identify cost-effective DSM actions that could be taken. They include audits, engineering design calculations on information provided about the building, and technical assistance to architects and engineers who design new facilities.

**Slope mine:** A mine that reaches the coal bed by means of an inclined opening.

**Slot:** A physical position in a rack in a storage pool that is intended to be occupied by an intact assembly or equivalent (that is, a canister or an assembly skeleton).

**Sludge:** A dense, slushy, liquid-to-semifluid product that accumulates as an end result of an industrial or technological process designed to purify a substance. Industrial sludges are produced from the processing of energy-related raw materials, chemical products, water, mined ores, sewerage, and other natural and man-made products. Sludges can also form from natural processes, such as the run off produced by rain fall, and accumulate on the bottom of bogs, streams, lakes, and tidelands.

**Slurry:** A viscous liquid with a high solids content.

**Slurry dam:** A repository for the silt or culm from a preparation plant.

**Small pickup truck:** A pickup truck weighing under 4,500 lbs GVW.

**Small power producer (SPP):** Under the Public Utility Regulatory Policies Act (PURPA), a small power production facility (or small power producer) generates electricity using waste, renewable (biomass, conventional hydroelectric, wind and solar, and geothermal) energy as a primary energy source. Fossil fuels can be used, but renewable resource must provide at least 75 percent of the total energy input. (See Code of Federal Regulations, Title 18, Part 292.)

**SNG:** See [Synthetic Natural Gas](#)

**SO<sub>2</sub>:** See [Sulfur Dioxide](#).

**Sodium lights:** A type of high intensity discharge light that has the most lumens per watt of any light source.

**Sodium silicate:** A grey-white powder soluble in alkali and water, insoluble in alcohol and acid. Used to fireproof textiles, in petroleum refining and corrugated paperboard manufacture, and as an egg preservative. Also referred to as liquid glass, silicate of soda, sodium metasilicate, soluble glass, and water glass.

**Sodium tripolyphosphate:** A white powder used for water softening and as a food additive and texturizer.

**Solar cell:** See [Photovoltaic cell](#)

**Solar constant:** The average amount of solar radiation that reaches the earth's upper atmosphere on a surface perpendicular to the sun's rays; equal to 1353 Watts per square meter or 492 Btu per square foot.

**Solar cooling:** The use of solar thermal energy or solar electricity to power a cooling appliance. There are five basic types of solar cooling technologies absorption cooling, which can use solar thermal energy to vaporize the refrigerant; desiccant cooling, which can use solar thermal energy to regenerate (dry) the desiccant; vapor compression cooling, which can use solar thermal energy to operate a Rankine-cycle heat engine; and evaporative coolers ("swamp" coolers), and heat-pumps and air conditioners that can be powered by solar photovoltaic systems.

**Solar declination:** The apparent angle of the sun north or south of the earth's equatorial plane. The earth's rotation on its axis causes a daily change in the declination.

**Solar dish:** See [Parabolic dish](#)

**Solar energy:** The radiant energy of the sun, which can be converted into other forms of energy, such as heat or electricity.

**Solar pond:** A body of water that contains brackish (highly saline) water that forms layers of differing salinity (stratifies) that absorb and trap solar energy. Solar ponds can be used to provide heat for industrial or agricultural processes, building heating and cooling, and to generate electricity.

**Solar power tower:** A solar energy conversion system that uses a large field of independently adjustable mirrors(heliostats) to focus solar rays on a near single point atop a fixed tower (receiver). The concentrated energy may be used to directly heat the working fluid of a Rankine cycle engine or to heat an intermediary thermal storage medium (such as a molten salt).

**Solar radiation:** A general term for the visible and near visible (ultraviolet and near-infrared) electromagnetic radiation that is emitted by the sun. It has a spectral, or wavelength, distribution that corresponds to different energy levels; short wavelength radiation has a higher energy than long-wavelength radiation.

**Solar spectrum:** The total distribution of electromagnetic radiation emanating from the sun. The different regions of the solar spectrum are described by their wavelength range. The visible region extends from about 390 to 780 nanometers (a nanometer is one billionth of one meter). About 99 percent of solar radiation is contained in a wavelength region from 300 nm (ultraviolet)

to 3,000 nm(near-infrared). The combined radiation in the wavelength region from 280 nm to 4,000 nm is called the broadband, or total, solar radiation.

**Solar thermal collector:** A device designed to receive solar radiation and convert it to thermal energy. Normally, a solar thermal collector includes a frame, glazing, and an absorber, together with appropriate insulation. The heat collected by the solar collector may be used immediately or stored for later use. Solar collectors are used for space heating; domestic hot water heating; and heating swimming pools, hot tubs, or spas.

**Solar thermal collector, high temperature:** A collector that generally operates at temperatures above 180 degrees Fahrenheit.

**Solar thermal collector, low-temperature:** A collector that generally operates at temperatures below 110 degrees Fahrenheit. Typically, it has no glazing or insulation and is made of plastic or rubber, although some are made of metal.

**Solar thermal collector, medium-temperature:** A collector that generally operates at temperatures of 140 degrees F to 180 degrees Fahrenheit, but can also operate at temperatures as low as 110 degrees Fahrenheit. Typically, it has one or two glazings, a metal frame, a metal absorption panel with integral flow channels or attached tubing (liquid collector) or with integral ducting (air collector) and insulation on the sides and back of the panel.

**Solar thermal collector, special:** An evacuated tube collector or a concentrating (focusing) collector. Special collectors operate in the temperature range from just above ambient temperature (low concentration for pool heating) to several hundred degrees Fahrenheit (high concentration for air conditioning and specialized industrial processes).

**Solar thermal panels:** A system that actively concentrates thermal energy from the sun by means of solar collector panels. The panels typically consist of flat, sun-oriented boxes with transparent covers, containing water tubes or air baffles under a blackened heat absorbent panel. The energy is usually used for space heating, for water heating, and for heating swimming pools.

**Solar thermal parabolic dishes:** A solar thermal technology that uses a modular mirror system that approximates a parabola and incorporates two-axis tracking to focus the sunlight onto receivers located at the focal point of each dish. The mirror system typically is made from a number of mirror facets, either glass or polymer mirror, or can consist of a single stretched membrane using a polymer mirror. The concentrated sunlight may be used directly by a Stirling, Rankine, or Brayton cycle heat engine at the focal point of the receiver or to heat a working fluid that is piped to a central engine. The primary applications include remote electrification, water pumping, and grid-connected generation.

**Solar trough or solar parabolic trough:** See [Parabolic trough](#)

**Solvent Refined Coal (SRC):** A tar-like fuel produced from coal when it is crushed and mixed with a hydrocarbon solvent at high temperature and pressure.

**Source material:** The term "source material" means (1) uranium, thorium, or any other material that is determined by the Atomic Energy Commission pursuant to the provisions of section 61 of the Atomic Energy Act of 1954, as amended, to be source material; or (2) ores containing one or

more of the foregoing materials, in such concentration as the Commission may by regulation determine from time to time.

**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. It does not include the use of energy to operate appliances (such as lights, televisions, and refrigerators) that give off heat as a byproduct.

**Spark spread:** A measurement of the difference between the price that a generator can obtain from selling one megawatt hour (MWh) of electricity and the cost of the natural gas needed to generate the MWh of electricity. Spark spread is a measure of potential profit for generating electricity on a particular day.

A key component in the spark spread equation is the heat rate (measure of efficiency) of the generating unit. A common measure for heat rate used in the trade press is 7,000 Btu/kWh. This heat rate is broadly representative of the efficiency of newer natural gas combined-cycle power plants. (By way of comparison, a plant that has a 50% efficiency rate has a heat rate of 6,824 Btu/kWh.) The most efficient natural gas combined-cycle power plants have heat rates somewhat below the 7,000 Btu/kWh threshold; they can make money even when the implied (breakeven) heat rate is a little below 7,000 Btu/kWh. Conversely, as the level of plant efficiency decreases, the spark spread diminishes—thus, older, less efficient plants have lower spark spreads than those with a heat rate of 7,000 Btu/kWh.

**Special collector:** An evacuated tube collector or a concentrating (focusing) collector. Special collectors operate in the temperature range from just above ambient temperature (low concentration for pool heating) to several hundred degrees Fahrenheit (high concentration for air conditioning and specialized industrial processes).

**Special contract rate schedule:** An electric rate schedule for an electric service agreement between a utility and another party in addition to, or independent of, any standard rate schedule.

**Special naphthas:** All finished products within the naphtha boiling range that are used as paint thinners, cleaners, or solvents. These products are refined to a specified flash point. Special naphthas include all commercial hexane and cleaning solvents conforming to ASTM Specification D1836 and D484, respectively. Naphthas to be blended or marketed as motor gasoline or aviation gasoline, or that are to be used as petrochemical and synthetic natural gas (SNG) feedstocks are excluded.

**Special nuclear material:** The term "special nuclear material" means (1) plutonium, uranium enriched in the isotope 233 or in the isotope 235, and any other material that the Atomic Energy Commission, pursuant to the provisions of section 51 of the Atomic Energy Act of 1954, as amended, determines to be special nuclear material, but does not include source material; or (2) any material artificially enriched by any of the foregoing, but does not include source material.

**Special purpose rate schedule:** An electric rate schedule limited in its application to some particular purpose or process within one, or more than one, type of industry or business.

**Specular reflectors:** Specular reflectors have mirror like characteristics (the word "specular" is derived from the Greek word meaning mirror). The most common materials used for ballasts, the devices that turn on and operate Fluorescent tubes, are aluminum and silver. Silver has the highest reflectivity; aluminum has the lowest cost. The materials and shape of the reflector are designed to reduce absorption of light within the fixture while delivering light in the desired angular pattern. Adding (or retrofitting) specular reflectors to an existing light fixture is frequently implemented as a conservation measure.

**Speculative resources (coal):** Undiscovered coal in beds that may occur either in known types of deposits in a favorable geologic setting where no discoveries have been made, or in deposits that remain to be recognized. Exploration that confirms their existence and better defines their quantity and quality would permit their reclassification as identified resources.

**Speculative resources (uranium):** Uranium in addition to Estimated Additional Resources (EAR) that is thought to exist, mostly on the basis of indirect evidence and geological extrapolations, in deposits discoverable with existing exploration techniques. The locations of deposits in this category can generally be specified only as being somewhere within given regions or geological trends. The existence and size of such deposits are speculative. The estimates in this category are less reliable than estimates of EAR. SR corresponds to DOE's Possible Potential Resources plus Speculative Potential Resources categories.

**Spent fuel:** Irradiated fuel that is permanently discharged from a 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.

**Spent fuel disassembly hardware:** The skeleton of a fuel assembly after the fuel rods have been removed. Generally, SFD hardware for PWR assemblies includes guide tubes; instrument tubes, top and bottom nozzles; grid spacers; hold-down springs; and attachment components, such as nuts and locking caps. For BWR fuel assemblies, SFD hardware includes the top and bottom tie plates, compression springs for individual fuel rods, grid spacers, and water rods.

**Spent liquor:** The liquid residue left after an industrial process; can be a component of waste materials used as fuel.

**Spillway:** A passage for surplus water to flow over or around a dam.

**Spinning reserve:** That reserve generating capacity running at a zero load and synchronized to the electric system.

**Split system:** When applied to electric air-conditioning equipment, it means a two-part system--an indoor unit and an outdoor unit. The indoor unit is an evaporator coil mounted in the indoor circulating air system, and the outdoor unit is an air-cooled condensing unit containing an electric motor-driven compressor, a condenser fan, and a fan motor.

**Split tails:** Use of one tails assay for transaction of enrichment services and a different tails assay for operation of the enrichment plant. This mode of operations typically increases the use

of uranium, which is relatively inexpensive, while decreasing the use of separative work, which is expensive.

**Spontaneous combustion, or self-heating, of coal:** A naturally occurring process caused by the oxidation of coal. It is most common in low-rank coals and is a potential problem in storing and transporting coal for extended periods. Factors involved in spontaneous combustion include the size of the coal (the smaller sizes are more susceptible), the moisture content, and the sulfur content. Heat buildup in stored coal can degrade the quality of coal, cause it to smolder, and lead to a fire.

**Spot market (natural gas):** A market in which natural gas is bought and sold for immediate or very near-term delivery, usually for a period of 30 days or less. The transaction does not imply a continuing arrangement between the buyer and the seller. A spot market is more likely to develop at a location with numerous pipeline interconnections, thus allowing for a large number of buyers and sellers. The Henry Hub in southern Louisiana is the best known spot market for natural gas.

**Spot market (uranium):** Buying and selling of uranium for immediate or very near-term delivery. It typically involves transactions for delivery of up to 500,000 pounds  $U_3O_8$  within a year of contract execution.

**Spot price:** The price for a one-time open market transaction for near-term delivery of a specific quantity of product at a specific location where the commodity is purchased at current market rates. See also [spot](#) market terms associated with specific energy types.

**Spot purchases:** A single shipment of fuel or volumes of fuel purchased for delivery within 1 year. Spot purchases are often made by a user to fulfill a certain portion of energy requirements, to meet unanticipated energy needs, or to take advantage of low-fuel prices.

**Spot-market price:** See [spot price](#).

**SPP:** See [Small Power Producer](#)

**SPR:** See [Strategic Petroleum Reserve](#).

**SR:** [Speculative Resources \(Coal\)](#)

**SR:** [Speculative Resources \(Uranium\)](#)

**Stability:** The property of a system or element by virtue of which its output will ultimately attain a steady state. The amount of power that can be transferred from one machine to another following a disturbance. The stability of a power system is its ability to develop restoring forces equal to or greater than the disturbing forces so as to maintain a state of equilibrium.

**Stability (electric):** The ability of an electric system to maintain a state of equilibrium during normal and abnormal conditions or disturbances. [NERC definition](#)

**Stabilization lagoon:** A shallow artificial pond used for the treatment of wastewater. Treatment includes removal of solid material through sedimentation, the decomposition of organic material by bacteria, and the removal of nutrients by algae.

**Stack:** A tall, vertical structure containing one or more flues used to discharge products of combustion to the atmosphere.

**Stand-alone generator:** A power source/generator that operates independently of or is not connected to an electric transmission and distribution network; used to meet a load(s) physically close to the generator.

**Standard contract:** The agreement between the Department of Energy (DOE) and the owners or generators of spent nuclear fuel and high-level radioactive waste, under which DOE will make available nuclear waste disposal services to those owners and generators.

**Standard fluorescent:** A light bulb made of a glass tube coated on the inside with fluorescent material, which produces light by passing electricity through mercury vapor causing the fluorescent coating to glow or fluoresce.

**Standard Industrial Classification (SIC):** Replaced with North American Industry Classification System. See [NAICS](#).

**Standby charge:** A charge for the potential use of a utility service, usually done by an agreement with another electric utility service. These services include system backup support and other running and quick-start capabilities.

**Standby electricity generation:** Involves use of generators during times of high demand on utilities to avoid extra "peak-demand" charges.

**Standby facility:** A facility that supports a utility system and is generally running under no-load. It is available to replace or supplement a facility normally in service.

**Standby heat loss:** A term used to describe heat energy lost from a water heater tank.

**Standby service:** Support service that is available as needed to supplement a customer, a utility system, or another utility if a schedule or an agreement authorizes the transaction. The service is not regularly used.

**Startup test phase of nuclear power plant:** A nuclear power plant that has been licensed by the Nuclear Regulatory Commission to operate but is still in the initial testing phase, during which the production of electricity may not be continuous. In general, when the electric utility is satisfied with the plant's performance, it formally accepts the plant from the manufacturer and places it in commercial operation status. A request is then submitted to the appropriate utility rate commission to include the power plant in the rate base calculation.

**Startup/flame stabilization fuel:** Any fuel used to initiate or sustain combustion or used to stabilize the height of flames once combustion is underway.

**State:** One of the 50 States, including adjacent outer continental shelf areas, or the District of Columbia.

**State permit/license/mine number:** Code assigned to a mining operation by the state in which the operation is located.

**State severance taxes:** Any severance, production, or similar tax, fee, or other levy imposed on the production of crude oil, natural gas, or coal by any State, local government acting under authority of State law, or by an Indian tribe recognized as eligible for services by the Secretary of the Interior.

**Station (electric):** A plant containing prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or nuclear energy into electric energy.

**Station use:** Energy that is used to operate an electric generating plant. It includes energy consumed for plant lighting, power, and auxiliary facilities, regardless of whether the energy is produced at the plant or comes from another source.

**Steam:** Water in vapor form; used as the working fluid in steam turbines and heating systems. Also see [District heat](#).

**Steam (purchased):** Steam, purchased for use by a refinery, that was not generated from within the refinery complex.

**Steam boiler:** A type of furnace in which fuel is burned and the heat is used to produce steam.

**Steam coal:** Coal burned, primarily in boilers, to generate steam for the production of electricity or for process heating purposes, or used as a direct source of process heat. Steam coal, also known as thermal coal, refers to all coal not classified as [coking \(or metallurgical\) coal](#). See [coal grade](#).

**Steam electric power plant (conventional):** A plant in which the prime mover is a steam turbine. The steam used to drive the turbine is produced in a boiler where fossil fuels are burned.

**Steam expenses:** The cost of labor, materials, fuel, and other expenses incurred in production of steam for electric generation.

**Steam for heating/cooling:** Steam produced at a combined heat and power plant for the purpose of heating and/or cooling space, such as district heating systems.

**Steam from other sources:** Steam purchased, transferred from another department of the utility, or acquired from others under a joint-facility operating agreement.

**Steam or hot water radiators or baseboards:** A distribution system where steam or hot water circulates through cast-iron radiators or base boards. Some other types of equipment in the building may be used to produce the steam or hot water or it may enter the building already heated as part of a district hot water system. Hot water does not include domestic hot water used for cooking and cleaning.

**Steam or hot-water system:** Either of two types of a central space-heating system that supplies steam or hot water to radiators, convectors, or pipes. The more common type supplies either steam or hot water to conventional radiators, baseboard radiators, convectors, heating pipes embedded in the walls or ceilings, or heating coils or equipment that are part of a combined heating/ventilating or heating/air-conditioning system. The other type supplies radiant heat through pipes that carry hot water and are held in a concrete slab floor.

**Steam transferred-credit:** The expenses of producing steam are charged to others or to other utility departments under a joint operating arrangement.

**Steam turbine:** A device that converts high-pressure steam, produced in a boiler, into mechanical energy that can then be used to produce electricity by forcing blades in a cylinder to rotate and turn a generator shaft.

**Still gas:** Any form or mixture of gases produced in refineries by distillation, cracking, reforming, and other processes. The principal constituents are methane and ethane. May contain hydrogen and small/trace amounts of other gases. Still gas is typically consumed as refinery fuel or used as petrochemical feedstock. Still gas burned for refinery fuel may differ in composition from marketed still gas sold to other users.

**Stock change:** The difference between stocks at the beginning of the reporting period and stocks at the end of the reporting period. Note: A negative number indicates a decrease (i.e., a drawdown) in stocks and a positive number indicates an increase (i.e., a buildup) in stocks during the reporting period.

**Stocks:** Inventories of fuel stored for future use.

**Storage agreement:** Any contractual arrangement between the responding company and a storage operator under which gas was stored for, or gas storage service was provided to, the responding company by the storage operator, irrespective of any responding company ownership interest in either the storage facilities or stored gas.

**Storage capacity:** The amount of energy an energy storage device or system can store.

**Storage hydroelectric plant:** A hydroelectric plant with reservoir storage capacity for power use.

**Storage site:** Spent nuclear fuel storage pool or dry cask storage facility, usually located at the reactor site, as licensed by (or proposed to be licensed by) the Nuclear Regulatory Commission (NRC).

**Storm door:** A second door installed outside or inside a prime door creating an insulating air space. Included are sliding glass doors made of double glass or of insulating glass such as thermopane and sliding glass doors with glass or Plexiglas placed on either the outside or inside of the door to create an insulating airspace. Not included are doors or sliding glass doors covered by plastic sheets or doors with storm window covering on just the glass portion of the door.

**Storm or multiple glazing:** A building shell conservation feature consisting of storm windows, stormdoors, or double- or triple-paned glass that are placed on the exterior of the building to reduce the rate of heat loss.

**Storm window:** A window or glazing material placed outside or inside a window creating an insulating air space. Plastic material over windows is counted as a storm window if the same plastic material can be used year after year or if the plastic is left in place year-round and is in good condition (no holes or tears). If the plastic material must be put up new each year, it is not counted as a storm window. It is counted as "plastic coverings." Glass or Plexiglas placed over windows on either the interior or exterior side is counted as storm windows.

**Stranded benefits:** Benefits associated with regulated retail electric service which may be at risk under open market retail competition. Examples include conservation programs, fuel diversity, reliability of supply, and tax revenues based on utility revenues.

**Stranded costs:** Costs incurred by a utility which may not be recoverable under market-based retail competition. Examples include undepreciated generating facilities, deferred costs, and long-term contract costs.

**Strategic Petroleum Reserve (SPR):** Petroleum stocks maintained by the Federal Government for use during periods of major supply interruption.

**Stratigraphic test well:** A geologically directed drilling effort to obtain information pertaining to a specific geological condition that might lead toward the discovery of an accumulation of hydrocarbons. Such wells are customarily drilled without the intention of being completed for hydrocarbon production. This classification also includes tests identified as core tests and all types of expendable holes related to hydrocarbon exploration.

**Stratosphere:** The region of the upper atmosphere extending from the tropopause (8 to 15 kilometers altitude) to about 50 kilometers. Its thermal structure, which is determined by its radiation balance, is generally very stable with low humidity.

**Stream-flow:** The rate at which water passes a given point in a stream, usually expressed in cubic feet per second.

**Strip mine:** An open cut in which the overburden is removed from a coal bed prior to the removal of coal.

**Strip mining (surface):** A method used on flatter terrain to recover coal by mining long strips successively; the material excavated from the strip being mined is deposited in the strip previously mined.

**Strip or stripping ratio:** The amount of overburden that must be removed to gain access to a unit amount of coal. A stripping ratio may be expressed as (1) thickness of overburden to thickness of coal, (2) volume of overburden to volume coal, (3) weight of overburden to weight of coal, or (4) cubic yards of overburden to tons of coal. A stripping ratio commonly is used to express the maximum thickness, volume, or weight of overburden that can be profitably removed to obtain a unit amount of coal.

**Stripper well:** An oil or gas well that produces at relatively low rates. For oil, stripper production is usually defined as production rates of between 5 and 15 barrels of oil per day. Stripper gas production would generally be anything less than 60 thousand cubic feet per day.

**Styrene:** A colorless, toxic liquid with a strong aromatic aroma. Insoluble in water, soluble in alcohol and ether; polymerizes rapidly; can become explosive. Used to make polymers and copolymers, polystyrene plastics, and rubber.

**Subbituminous coal:** A coal whose properties range from those of lignite to those of bituminous coal and used primarily as fuel for steam-electric power generation. It may be dull, dark brown to black, soft and crumbly, at the lower end of the range, to bright, jet black, hard, and relatively strong, at the upper end. Subbituminous coal contains 20 to 30 percent inherent moisture by weight. The heat content of subbituminous coal ranges from 17 to 24 million Btu per ton on a moist, mineral-matter-free basis. The heat content of subbituminous coal consumed in the United

States averages 17 to 18 million Btu per ton, on the as-received basis (i.e., containing both inherent moisture and mineral matter).

**Subcompact/compact passenger car:** A passenger car containing less than 109 cubic feet of interior passenger and luggage volume.

**Subdivision:** A prescribed portion of a given State or other geographical region.

**Submetered data:** End-use consumption data obtained for individual appliances when a recording device has been attached to the appliance to measure the amount of energy consumed by the appliance.

**Subsidiary:** An entity directly or indirectly controlled by a parent company which owns 50% or more of its voting stock.

**Substation:** Facility equipment that switches, changes, or regulates electric voltage.

**Subtransmission:** A set of transmission lines of voltages between transmission voltages and distribution voltages. Generally, lines in the voltage range of 69 kV to 138 kV.

**Sulfur:** A yellowish nonmetallic element, sometimes known as "brimstone." It is present at various levels of concentration in many fossil fuels whose combustion releases sulfur compounds that are considered harmful to the environment. Some of the most commonly used fossil fuels are categorized according to their sulfur content, with lower sulfur fuels usually selling at a higher price. Note: No.2 Distillate fuel is currently reported as having either a 0.05 percent or lower sulfur level for on-highway vehicle use or a greater than 0.05 percent sulfur level for off-highway use, home heating oil, and commercial and industrial uses. Residual fuel, regardless of use, is classified as having either no more than 1 percent sulfur or greater than 1 percent sulfur. Coal is also classified as being low- sulfur at concentrations of 1 percent or less or high-sulfur at concentrations greater than 1 percent.

**Sulfur dioxide (SO<sub>2</sub>):** A toxic, irritating, colorless gas soluble in water, alcohol, and ether. Used as a chemical intermediate, in paper pulping and ore refining, and as a solvent.

**Sulfur hexafluoride (SF<sub>6</sub>):** A colorless gas soluble in alcohol and ether, and slightly less soluble in water. It is used as a dielectric in electronics. It possesses the highest 100-year Global Warming Potential of any gas (23,900).

**Sulfur oxides (SO<sub>x</sub>):** Compounds containing sulfur and oxygen, such as sulfur dioxide (SO<sub>2</sub>) and sulfur trioxide (SO<sub>3</sub>).

**Summer and winter peaking:** Having the annual peak demand reached both during the summer months (May through October) and during the winter months (November through April).

**Sunk cost:** Part of the capital costs actually incurred up to the date of reserves estimation minus depreciation and amortization expenses. Items such as exploration costs, land acquisition costs, and costs of financing can be included.

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

**Supervisory Control and Data Acquisition (electric):** A system of remote control and telemetry used to monitor and control the transmission system. [NERC definition](#)

**Supplemental gas:** Any gaseous substance introduced into or commingled with natural gas that increased the volume available for disposition. Such substances include, but are not limited to, propane-air, refinery gas, coke-oven gas, still gas, manufactured gas, biomass gas, or air or inerts added for Btu stabilization.

**Supplemental gaseous fuels supplies:** Synthetic natural gas, propane-air, coke oven gas, refinery gas, biomass gas, air injected for Btu stabilization, and manufactured gas commingled and distributed with natural gas.

**Supply:** The components of petroleum supply are field production, refinery production, imports, and net receipts when calculated on a PAD District basis.

**Supply source:** May be a single completion, a single well, a single field with one or more reservoirs, several fields under a single gas-purchase contract, miscellaneous fields, a processing plant, or a field area; provided, however, that the geographic area encompassed by a single supply source may not be larger than the state in which the reserves are reported.

**Supply, petroleum:** A set of categories used to account for how crude oil and petroleum products are transferred, distributed, or placed into the supply stream. The categories include field production, refinery production, and imports. Net receipts are also included on a Petroleum Administration for Defense(PAD) District basis to account for shipments of crude oil and petroleum products across districts.

**Support equipment and facilities:** These include, but are not limited to, seismic equipment, drilling equipment, construction and grading equipment, vehicles, repair shops, warehouses, supply points, camps, and division, district, or field offices.

**Supporting structure:** The main supporting unit (usually a pole or tower) for transmission line conductors, insulators, and other auxiliary line equipment.

**Surface drilling expenses (uranium):** These include drilling, drilling roads, site preparation, geological and other technical support, sampling, and drill-hole logging costs.

**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 coalbed, which is then mined with surface excavation equipment, such as draglines, powers hovels, bulldozers, loaders, and augers. It may also be known as an area, contour, open-pit, strip, or auger mine.

**Surface mining equipment:**

- An Auger machine is a large, horizontal drill, generally 3 feet or more in diameter and up to about 100 feet long. It can remove coal at a rate of more than 25 tons per minute.
- A bucket-wheel excavator is a continuous digging machine equipped with a broom on which is mounted a rotating wheel with buckets along its edge. The buckets scoop up material, then empty onto a conveyor leading to a spoil bank. It is best suited for removing overburden that does not require blasting. This excavator is not widely used in the United States.

- A bulldozer is a tractor with a movable steel blade mounted on the front. It can be used to remove overburden that needs little or no blasting.
- A carryall scraper (or pan scraper) is a self-loading machine, usually self-propelled, with a scraper-like retractable bottom. It is used to excavate and haul overburden.
- A continuous surface miner, used in some lignite mines, is equipped with crawlers, a rotating cutting head, and a conveyor. It travels over the bed, excavating a swath up to 13 feet wide and 2 feet deep.
- A dragline excavator removes overburden to expose the coal by means of a scoop bucket that is suspended from a long boom. The dragline digs by pulling the bucket toward the machine by means of a wire rope.
- A walking dragline is equipped with large outrigger platforms, or walking beams, instead of crawler tracks. It "walks" by the alternate movement of the walking beams.
- A drilling rig is used to determine the amount and type of overburden overlying a coal deposit and the extent of the deposit, to delineate major geologic features, and to drill holes for explosives to fragment the overburden for easier removal.
- A front-end loader is a tractor with a digging bucket mounted and operated on the front. It is often used to remove overburden in contour mining and to load coal.
- An hydraulic shovel excavates and loads by means of a bucket attached to a rigid arm that is hinged to a broom.
- A power shovel removes overburden and loads coal by means of a digging bucket mounted at the end of an arm suspended from a broom. The shovel digs by pushing the bucket forward and upward. It does not dig below the level at which it stands.
- A thin-seam miner resembles an auger machine but has a drum-type cutting head that cuts a rectangular cross section.

### **Surface mining methods:**

- Auger mining recovers coal through the use of a large-diameter drill driven into a coalbed in the side of a surface mine pit. It usually follows contour surface mining, particularly when the overburden is too costly to excavate.
- Area mining is practiced on relatively flat or gently rolling terrain and recovers coal by mining long strips successively; the material excavated from the strip being mined is deposited in the strip pit previously mined.
- Contour mining is practiced when the coal is mined on hillsides. The mining follows the contour of the hillside until the overburden becomes uneconomical to remove. This method creates a shelf, or bench, on the hillside. Several variations of contour mining have been developed to control environmental problems. These methods include slope reduction (overburden is spread so that the angle of the slope on the hillside is reduced), head-of-hollow fill (overburden is placed in narrow V-shaped valleys to control erosion), and block-cut (overburden from current mining is backfilled into a previously mined cut).

- Explosives casting is a technique designed to blast up to 65 percent of the overburden into the mine pit for easier removal. It differs from conventional overburden blasting, which only fractures the overburden before it is removed by excavating equipment.
- Mountaintop mining, sometimes considered a variation of contour mining, refers to the mining of a coalbed that underlies the top of a mountain. The overburden, which is the mountaintop, is completely removed so that all of the coal can be recovered. The overburden material is later replaced in the mined-out area. This method leaves large plateaus of level land.
- Open-pit coal mining is essentially a combination of contour and area mining methods and is used to mine thick, steeply inclined coalbeds. The overburden is removed by power shovels and trucks.

**Surface rights:** Fee ownership in surface areas of land. Also used to describe a lessee's right to use as much of the surface of the land as may be reasonably necessary for the conduct of operations under the lease.

**Surplus energy:** Energy generated that is beyond the immediate needs of the producing system. This energy may be supplied by spinning reserve and sold on an interruptible basis.

**Suspended rates:** New rates that have been accepted for review by a utility commission. When these rates are suspended, they do not go into effect for a designated period of time. Charges under the new rate may be refunded after the resolution of the rate proceeding.

**Swamp coolers (evaporative coolers):** Air-conditioning equipment that removes heat by evaporating water. Evaporative cooling techniques are most commonly found in warm, dry climates such as in the Southwest, although they are found throughout the country. They usually work by spraying cool water into the air ducts, cooling the air as the spray evaporates.

**Switching station:** Facility equipment used to tie together two or more electric circuits through switches. The switches are selectively arranged to permit a circuit to be disconnected or to change the electric connection between the circuits.

**SWU:** See [Separative Work Unit](#)

**Synthetic natural gas (SNG):** (Also referred to as substitute natural gas) A manufactured product, chemically similar in most respects to natural gas, resulting from the conversion or reforming of hydrocarbons that may easily be substituted for or interchanged with pipeline-quality natural gas.

**System (electric):** Physically connected generation, transmission, and distribution facilities operated as an integrated unit under one central management or operating supervision.

**System (gas):** An interconnected network of pipes, valves, meters, storage facilities, and auxiliary equipment used in the transportation, storage, and/or distribution of natural gas or commingled natural and supplemental gas.

**System interconnection:** A physical connection between two electric systems that permits the transfer of electric energy in either direction.

**System operator (electric):** An individual at a control center (Balancing Authority, Transmission Operator, Generator Operator, Reliability Coordinator) whose responsibility it is to monitor and control that electric system in real time. [NERC definition](#)

**A B C D E F G H I J K L M N O P Q R S T U**  
**V W X Y Z**

**Thank You.** We welcome your comments or suggestions (*optional*).

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