

Glossary

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C

C/gal: Cents per gallon

C₄H: A mixture of light hydrocarbons that have the general formula C₄H_n, where n is the number of hydrogen atoms per molecule. Examples include butane (C₄H₁₀) and butylene (C₄H₈).

CAFE: Corporate Average Fuel Economy

Calcination: A process in which a material is heated to a high temperature without fusing, so that hydrates, carbonates, or other compounds are decomposed and the volatile material is expelled.

Calcium sulfate: A white crystalline salt, insoluble in water. Used in Keene's cement, in pigments, as a paper filler, and as a drying agent.

Calcium sulfite: A white powder, soluble in diluted sulfuric acid. Used in the sulfite process for the manufacture of wood pulp.

California power exchange: A State-chartered, non-profit corporation which provides day-ahead and hour-ahead markets for energy and ancillary services in accordance with the power exchange tariff. The power exchange is a scheduling coordinator and is independent of both the independent system operator and all other market participants.

Canadian deuterium uranium reactor (CANDU): Uses heavy water or deuterium oxide (D₂O), rather than light water (H₂O), as the coolant and moderator. Deuterium is an isotope of hydrogen that has a different neutron absorption spectrum from that of ordinary hydrogen. In a deuterium-moderated-reactor, fuel made from natural uranium (0.71U-235) can sustain a chain reaction.

Cannel coal: A compact, tough variety of coal, originating from organic spore residues, that is non-caking, contains a high percentage of volatile matter, ignites easily, and burns with a luminous smoky flame.

Capable of being fueled: A vehicle is capable of being fueled by a particular fuel(s) if that vehicle has the engine components in place to make operation possible on the fuel(s). The

vehicle does not necessarily have to run on the fuel(s) in order for that vehicle to be considered capable of being fueled by the fuel(s). For example, a vehicle that is equipped to operate on either gasoline or natural gas but normally operates on gasoline is considered to be capable of being fueled by gasoline and natural gas.

Capacity: See [Generator capacity](#) and (installed) [Generator name plate capacity](#).

Capacity (purchased): The amount of energy and capacity available for purchase from outside the system.

Capacity charge: An element in a two-part pricing method used in capacity transactions (energy charge is the other element). The capacity charge, sometimes called Demand Charge, is assessed on the amount of capacity being purchased.

Capacity factor: The ratio of the electrical energy produced by a generating unit for the period of time considered to the electrical energy that could have been produced at continuous full power operation during the same period.

Capacity transaction: The acquisition of a specified quantity of generating capacity from another utility for a specified period of time. The utility selling the power is obligated to make available to the buyer a specified quantity of power.

Capacity utilization: Capacity utilization is computed by dividing production by productive capacity and multiplying by 100.

Capital cost: The cost of field development and plant construction and the equipment required for industry operations.

Capital stock: Property, plant and equipment used in the production, processing and distribution of energy resources.

Captive coal: Coal produced to satisfy the needs of the mine owner, or of a parent, subsidiary, or other affiliate of the mine owner (for example, steel companies and electricity generators), rather than for open market sale.

Captive refinery MTBE plants: MTBE (methyltertiary butyl ether) production facilities primarily located within refineries. These integrated refinery units produce MTBE from Fluid Cat Cracker isobutylene with production dedicated to internal gasoline blending requirements.

Captive refinery oxygenate plants: Oxygenate production facilities located within or adjacent to a refinery complex.

CARB: California Air Resources Board

Carbon black: An amorphous form of carbon, produced commercially by thermal or oxidative decomposition of hydrocarbons and used principally in rubber goods, pigments, and printer's ink.

Carbon budget: The balance of the exchanges (incomes and losses) of carbon between carbon sinks (e.g., atmosphere and biosphere) in the carbon cycle. Also see [Carbon cycle](#) and [Carbon sink](#).

Carbon cycle: All carbon sinks and exchanges of carbon from one sink to another by various chemical, physical, geological, and biological processes. Also see [Carbon sink](#).

Carbon dioxide (CO₂): A colorless, odorless, non-poisonous gas that is a normal part of Earth's atmosphere. Carbon dioxide is a product of fossil-fuel combustion as well as other processes. It is considered a greenhouse gas as it traps heat (infrared energy) radiated by the Earth into the atmosphere and thereby contributes to the potential for global warming. The global warming potential (GWP) of other greenhouse gases is measured in relation to that of carbon dioxide, which by international scientific convention is assigned a value of one (1). Also see [Global warming potential \(GWP\)](#) and [Greenhouse gases](#).

Carbon dioxide equivalent: The amount of carbon dioxide by weight emitted into the atmosphere that would produce the same estimated radiative forcing as a given weight of another radiatively active gas. Carbon dioxide equivalents are computed by multiplying the weight of the gas being measured (for example, methane) by its estimated global warming potential (which is 21 for methane). "Carbon equivalent units" are defined as carbon dioxide equivalents multiplied by the carbon content of carbon dioxide (i.e., 12/44).

Carbon flux: See [Carbon budget](#).

Carbon intensity: The amount of carbon by weight emitted per unit of energy consumed. A common measure of carbon intensity is weight of carbon per British thermal unit (Btu) of energy. When there is only one fossil fuel under consideration, the carbon intensity and the emissions coefficient are identical. When there are several fuels, carbon intensity is based on their combined emissions coefficients weighted by their energy consumption levels. Also see [Emissions coefficient](#) and [Carbon output rate](#).

Carbon output rate: The amount of carbon by weight per kilowatthour of electricity produced.

Carbon sequestration: The fixation of atmospheric carbon dioxide in a carbon sink through biological or physical processes.

Carbon sink: A reservoir that absorbs or takes up released carbon from another part of the carbon cycle. The four sinks, which are regions of the Earth within which carbon behaves in a systematic manner, are the atmosphere, terrestrial biosphere (usually including freshwater systems), oceans, and sediments (including fossil fuels).

Carbon stocks: The quantity of carbon stored in biological and physical systems including: trees, products of harvested trees, agricultural crops, plants, wood and paper products and other terrestrial biosphere sinks, soils, oceans, and sedimentary and geological sinks.

Carburetor: A fuel delivery device for producing a proper mixture of gasoline vapor and air and for delivering it to the intake manifold of an internal combustion engine. Gasoline is gravity-fed from a reservoir bowl into a throttle bore, where it is allowed to evaporate into the stream of air being inducted by the engine. Also see [Diesel Fuel System](#) and [Fuel Injection](#).

Carrying costs: Costs incurred in order to retain exploration and property rights after acquisition but before production has occurred. Such costs include legal costs for title defense, ad valorem taxes on nonproducing mineral properties, shut-in royalties, and delay rentals.

Cash and carry: Kerosene, fuel oil, or bottled gas (tank or propane) purchased with cash, by check, or by credit card and taken home by the purchaser. The purchaser provides the container or pays extra for the container.

Casinghead gas (or oil well gas): Natural gas produced along with crude oil from oil wells. It contains either dissolved or associated gas or both.

Cast silicon: Crystalline silicon obtained by pouring pure molten silicon into a vertical mold and adjusting the temperature gradient along the mold volume during cooling to obtain slow, vertically advancing crystallization of the silicon. The polycrystalline ingot thus formed is composed of large, relatively parallel, interlocking crystals. The cast ingots are sawed into wafers for further fabrication into photovoltaic cells. Cast silicon wafers and ribbon silicon sheets fabricated into cells are usually referred to as polycrystalline photovoltaic cells.

Catalyst coke: In many catalytic operations (e.g., catalytic cracking), carbon is deposited on the catalyst, thus deactivating the catalyst. The catalyst is reactivated by burning off the carbon, which is used as a fuel in the refining process. This carbon or coke is not recoverable in a concentrated form.

Catalytic converter: A device containing a catalyst for converting automobile exhaust into mostly harmless products.

Catalytic cracking: The refining process of breaking down the larger, heavier, and more complex hydrocarbon molecules into simpler and lighter molecules. Catalytic cracking is accomplished by the use of a catalytic agent and is an effective process for increasing the yield of gasoline from crude oil. Catalytic cracking processes fresh feeds and recycled feeds.

Catalytic hydrocracking: A refining process that uses hydrogen and catalysts with relatively low temperatures and high pressures for converting middle boiling or residual material to high octane gasoline, reformer charge stock, jet fuel, and /or high grade fuel oil. The process uses one or more catalysts, depending on product output, and can handle high sulfur feed stocks without prior desulfurization.

Catalytic hydrotreating: A refining process for treating petroleum fractions from atmospheric or vacuum distillation units (e.g., naphthas, middle distillates, reformer feeds, residual fuel oil, and heavy gas oil) and other petroleum (e.g., cat cracked naphtha, coker naphtha, gas oil, etc.) in the presence of catalysts and substantial quantities of hydrogen. Hydrotreating includes desulfurization, removal of substances (e.g., nitrogen compounds) that deactivate catalysts, conversion of olefins to paraffins to reduce gum formation in gasoline, and other processes to upgrade the quality of the fractions.

Catalytic reforming: A refining process using controlled heat and pressure with catalysts to rearrange certain hydrocarbon molecules, there by converting paraffinic and naphthenic type hydrocarbons (e.g., low octane gasoline boiling range fractions) into petrochemical feedstocks and higher octane stocks suitable for blending into finished gasoline. Catalytic reforming is reported in two categories. They are:

- **Low Pressure.** A processing unit operating at less than 225 pounds per square inch gauge (PSIG) measured at the outlet separator.

- **High pressure.** A processing unit operating at either equal to or greater than 225 pounds per square inch gauge (PSIG) measured at the outlet separator.

CBOB: conventional gasoline blendstock for oxygenate blending

CDD: See [Cooling Degree Days](#).

Cells: Refers to the un-encapsulated semi-conductor components of the module that convert the solar energy to electricity.

Cells to OEM (non-PV): Cells shipped to non-photovoltaic original equipment manufacturers such as boat manufacturers, car manufacturers, etc.

Census division: Any of nine geographic areas of the United States as defined by the U.S. Department of Commerce, Bureau of the Census. The divisions, each consisting of several States, are defined as follows:

- **New England:** Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont;
- **Middle Atlantic:** New Jersey, New York, and Pennsylvania;
- **East North Central:** Illinois, Indiana, Michigan, Ohio, and Wisconsin;
- **West North Central:** Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota;
- **South Atlantic:** Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia;
- **East South Central:** Alabama, Kentucky, Mississippi, and Tennessee;
- **West South Central:** Arkansas, Louisiana, Oklahoma, and Texas;
- **Mountain:** Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming;
- **Pacific:** Alaska, California, Hawaii, Oregon, and Washington.

Note: Each division is a sub-area within a broader Census Region. For the relationship between Regions and divisions, see [Census Region/division](#). In some cases, the Pacific division is subdivided into the Pacific Contiguous area (California, Oregon, and Washington) and the Pacific Noncontiguous area (Alaska and Hawaii).

Census Region: Any of four geographic areas of the United States as defined by the U.S. Department of Commerce, Bureau of the Census. The Regions, each consisting of various States selected according to population size and physical location, are defined as follows:

- **Northeast:** Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
- **South:** Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

- **Midwest:** Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.
- **West:** Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Note: Each region comprises two or three sub-areas called Census divisions. For the relationship between Regions and divisions, see [Census Region/division](#).

Census Region/division: An hierarchical organization of the **United States** according to geographic areas and sub-areas as follows:

Northeast Region: New England division and Middle Atlantic division

South Region: South Atlantic division, East South Central division and West South Central division

Midwest Region: East North Central division and West North Central division

West Region: Mountain division and Pacific division

Note: In some cases, the Pacific division is subdivided into the Pacific Contiguous area (California, Oregon, and Washington) and the Pacific Noncontiguous area (Alaska and Hawaii).

Central chiller: Any centrally located air conditioning system that produces chilled water in order to cool air. The chilled water or cold air is then distributed throughout the building, using pipes or air ducts or both. These systems are also commonly known as "chillers," "centrifugal chillers," "reciprocating chillers," or "absorption chillers." Chillers are generally located in or just outside the building they serve. Buildings receiving district chilled water are served by chillers located at central physical plants.

Central cooling: Cooling of an entire building with a refrigeration unit to condition the air. Typically central chillers and duct work are present in the centrally cooled building.

Central physical plant: A plant owned by, and on the grounds of, a multibuilding facility that provides district heating, district cooling, or electricity to other buildings on the same facility. To qualify as a central plant it must provide district heat, district chilled water, or electricity to at least one other building. The central physical plant may be by itself in a separate building or may be located in a building where other activities occur.

Central warm air furnace: A type of space heating equipment where a central combustor or resistance unit generally using gas, fuel oil, or electricity provides warm air through ducts leading to the various rooms. Heat pumps are not included in this category. A forced air furnace is one in which a fan is used to force the air through the ducts. In a gravity furnace, air is circulated by gravity, relying on the natural flow of warm air up and cold air down; the warm air rises through ducts and the cold air falls through ducts that return it to the furnace to be reheated and this completes the circulation cycle.

Centralized water heating system: Equipment, to heat and store water for other than space heating purposes, which provides hot water from a single location for distribution throughout a building. A residential type tank water heater is a good example of a centralized water heater.

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act

Certificate: A type of permit for public convenience and necessity issued by a utility commission, which authorizes a utility or regulated company to engage in business, construct facilities, provide some services, or abandon service.

Certificate requirement: The maximum annual volume allowed for sales to resale or direct sale customers under certificate authorizations by the Federal Energy Regulatory Commission.

Cesspool: An underground reservoir for liquid waste, typically household sewage.

CF: Cubic Foot

CFC: See [Chlorofluorocarbon](#).

CFS: Cubic Feet per Second

CH₄: [Methane](#)

Chained dollars: A measure used to express real prices. Real prices are those that have been adjusted to remove the effect of changes in the purchasing power of the dollar; they usually reflect buying power relative to a reference year. Prior to 1996, real prices were expressed in constant dollars, a measure based on the weights of goods and services in a single year, usually a recent year. In 1996, the U.S. Department of Commerce introduced the chained-dollar measure. The new measure is based on the average weights of goods and services in successive pairs of years. It is "chained" because the second year in each pair, with its weights, becomes the first year of the next pair. The advantage of using the chained-dollar measure is that it is more closely related to any given period covered and is therefore subject to less distortion over time.

Characterization: Sampling, monitoring, and analysis activities to determine the extent and nature of contamination at a facility or site. Characterization provides the necessary technical information to develop, screen, analyze, and select appropriate clean-up techniques.

Charge capacity: The input (feed) capacity of the refinery processing facilities.

Chemical separation: A process for extracting uranium and plutonium from dissolved spent nuclear fuel and irradiated targets. The fission products that are left behind are high-level waste. Chemical separation is also known as reprocessing.

Chlorofluorocarbon (CFC): Any of various compounds consisting of carbon, hydrogen, chlorine, and fluorine used as refrigerants. CFCs are now thought to be harmful to the earth's atmosphere.

CHP: [Combined Heat and Power](#)

Christmas tree: The valves and fittings installed at the top of a gas or oil well to control and direct the flow of well fluids.

CIF (cargo, insurance and freight): CIF refers to cargos for which the seller pays for the transportation and insurance up to the port of destination.

CIF (cost, insurance, freight): This term refers to a type of sale in which the buyer of the product agrees to pay a unit price that includes the f.o.b. value of the product at the point of origin plus all costs of insurance and transportation. This type of a transaction differs from a "delivered" purchase, in that the buyer accepts the quantity as determined at the loading port (as

certified by the Bill of Lading and Quality Report) rather than pay based on the quantity and quality ascertained at the unloading port. It is similar to the terms of an f.o.b. sale, except that the seller, as a service for which he is compensated, arranges for transportation and insurance.

Circuit: A conductor or a system of conductors through which electric current flows.

Circuit-mile: The total length in miles of separate circuits regardless of the number of conductors used per circuit.

Citygate: A point or measuring station at which a distributing gas utility receives gas from a natural gas pipeline company or transmission system.

CIV: [customs import value](#)

Class rate schedule: An electric rate schedule applicable to one or more specified classes of service, groups of businesses, or customer uses.

Classes of service: Customers grouped by similar characteristics in order to be identified for the purpose of setting a common rate for electric service. Usually classified into groups identified as residential, commercial, industrial, and other.

Clean Development Mechanism (CDM): A Kyoto Protocol program that enables industrialized countries to finance emissions-avoiding projects in developing countries and receive credit for reductions achieved against their own emissions limitation targets. Also see [Kyoto Protocol](#).

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

Clinker: Powdered cement, produced by heating a properly proportioned mixture of finely ground raw materials (calcium carbonate, silica, alumina, and iron oxide) in a kiln to a temperature of about 2,700 degrees Fahrenheit.

Cloud condensation nuclei: Aerosol particles that provide a platform for the condensation of water vapor, resulting in clouds with higher droplet concentrations and increased albedo.

CMSA: consolidated metropolitan statistical area

CNG: [Compressed Natural Gas](#)

cnt: Cent

CO: Carbon Monoxide

CO control period ("seasons"): The portion of the year in which a CO nonattainment area is prone to high ambient levels of carbon monoxide. This portion of the year is to be specified by the Environmental Protection Agency but is to be not less than 4 months in length.

CO nonattainment area: Areas with carbon monoxide design values of 9.5 parts per million or more, generally based on data for 1988 and 1989.

CO₂: Carbon Dioxide

Coal: A readily combustible black or brownish-black rock whose composition, including inherent moisture, consists of more than 50 percent by weight and more than 70 percent by volume of carbonaceous material. It is formed from plant remains that have been compacted, hardened, chemically altered, and metamorphosed by heat and pressure over geologic time.

Coal analysis: Determines the composition and properties of coal so it can be ranked and used most effectively.

- **Proximate analysis**, determines, on an as-received basis, the moisture content, volatile matter (gases released when coal is heated), fixed carbon (solid fuel left after the volatile matter is driven off), and ash (impurities consisting of silica, iron, alumina, and other incombustible matter). The moisture content affects the ease with which coal can be handled and burned. The amount of volatile matter and fixed carbon provides guidelines for determining the intensity of the heat produced. Ash increases the weight of coal, adds to the cost of handling, and can cause problems such as clinkering and slagging in boilers and furnaces.
- **Ultimate analysis** determines the amount of carbon, hydrogen, oxygen, nitrogen, and sulfur. Heating value is determined in terms of Btu, both on an as received basis (including moisture) and on a dry basis.
- **Agglomerating** refers to coal that softens when heated and forms a hard gray coke; this coal is called caking coal. Not all caking coals are coking coals. The agglomerating value is used to differentiate between coal ranks and also is a guide to determine how a particular coal reacts in a furnace.
- **Agglutinating** refers to the binding qualities of a coal. The agglutinating value is an indication of how well a coke made from a particular coal will perform in a blast furnace. It is also called a caking index.
- **Other tests** include the determination of the ash softening temperature, the ash fusion temperature (the temperature at which the ash forms clinkers or slag), the free swelling index (a guide to a coal's coking characteristics), the Gray King test (which determines the suitability of coal for making coke), and the Hardgrove grindability index (a measure of the ease with which coal can be pulverized). In a petrographic analysis, thin sections of coal or highly polished blocks of coal are studied with a microscope to determine the physical composition, both for scientific purposes and for estimating the rank and coking potential.

Coal bed: A bed or stratum of coal. Also called a coal seam.

Coal bed degasification: This refers to the removal of methane or coal bed gas from a coal mine before or during mining.

Coal Blending: The process of combining two or more coals with different characteristics to obtain coal with a certain quality, such as low sulfur content.

Coal briquets: Anthracite, bituminous, and lignite briquets comprise the secondary solid fuels manufactured from coal by a process in which the coal is partly dried, warmed to expel excess

moisture, and then compressed into briquets, usually without the use of a binding substance. In the reduction of briquets to coal equivalent, different conversion factors are applied according to their origin from hard coal, peat, brown coal, or lignite.

Coal carbonized: The amount of coal decomposed into solid coke and gaseous products by heating in a coke oven in a limited air supply or in the absence of air.

Coal chemicals: Coal chemicals are obtained from the gases and vapor recovered from the manufacturing of coke. Generally, crude tar, ammonia, crude light oil, and gas are the basic products recovered. They are refined or processed to yield a variety of chemical materials.

Coal Classification: In the United States, coals are classified by rank progressively from lignite (least carbonaceous) to anthracite (most carbonaceous) based on the proximate analyses of various properties (fixed carbon, volatile matter, heating value, and agglomerating character), following methods prescribed by the [American Society for Testing and Materials](#). The International Coal Classification of the Economic Commission for Europe recognizes two broad categories of coal, "brown coal" and "hard coal." In terms of U.S. coal classification, the international classification of brown coal includes lignite and lower-ranked subbituminous coal, whereas hard coal includes all higher rank coals. See [Coal Rank](#).

Coal coke: See [Coke \(coal\)](#).

Coal consumption: The quantity of coal burned for the generation of electric power (in short tons), including fuel used for maintenance of standby service.

Coal delivered: Coal which has been delivered from the coal supplier to any site belonging to the electric power company.

Coal exports: Amount of U.S. coal shipped to foreign destinations, as reported in the U.S. Department of Commerce, Bureau of Census, "Monthly Report EM 545."

Coal face: This is the exposed area from which coal is extracted.

Coal financial reporting regions: A geographic classification of areas with coal resources which is used for financial reporting of coal statistics.

- **Eastern Region.** Consists of the Appalachian Coal Basin. The following comprise the Eastern Region: Alabama, eastern Kentucky, Georgia, Maryland, Mississippi, Ohio, Pennsylvania, Virginia, Tennessee, North Carolina, and West Virginia.
- **Midwest Region.** Consists of the Illinois and Michigan Coal Basins. The following comprise the Midwest Region: Illinois, Indiana, Michigan, and western Kentucky.
- **Western Region.** Consists of the Northern Rocky, Southern Rocky, West Coast Coal Basins and Western Interior. The following comprise the Western Region: Alaska, Arizona, Arkansas, California, Colorado, Idaho, Iowa, Kansas, Louisiana, Missouri, Montana, New Mexico, North Dakota, Oklahoma, Oregon, Texas, South Dakota, Utah, Washington, and Wyoming.

Coal fines: Coal with a maximum particle size usually less than one-sixteenth inch and rarely above one-eighth inch.

Coal gas: Substitute natural gas produced synthetically by the chemical reduction of coal at a coal gasification facility.

Coal gasification: The process of converting coal into gas. The basic process involves crushing coal to a powder, which is then heated in the presence of steam and oxygen to produce a gas. The gas is then refined to reduce sulfur and other impurities. The gas can be used as a fuel or processed further and concentrated into chemical or liquid fuel.

Coal grade: This classification refers to coal quality and use.

- **Briquettes** are made from compressed coal dust, with or without a binding agent such as asphalt.
- **Cleaned coal or prepared coal** has been processed to reduce the amount of impurities present and improve the burning characteristics.
- **Compliance coal** is a coal, or a blend of coal, that meets sulfur dioxide emission standards for air quality without the need for flue-gas desulfurization.
- **Culm and silt** are waste materials from preparation plants. In the anthracite region, culm consists of coarse rock fragments containing as much as 30 percent small-sized coal. Silt is a mixture of very fine coal particles (approximately 40 percent) and rock dust that has settled out from waste water from the plants. The terms culm and silt are sometimes used interchangeably and are sometimes called refuse. Culm and silt have a heat value ranging from 8 to 17 million Btu per ton.
- **Low-sulfur coal** generally contains 1 percent or less sulfur by weight. For air quality standards, "low sulfur coal" contains 0.6 pounds or less sulfur per million Btu, which is equivalent to 1.2 pounds of sulfur dioxide per million Btu.
- **Metallurgical coal (or coking coal)** meets the requirements for making coke. It must have a low ash and sulfur content and form a coke that is capable of supporting the charge of iron ore and limestone in a blast furnace. A blend of two or more bituminous coals is usually required to make coke.
- **Pulverized coal** is a coal that has been crushed to a fine dust in a grinding mill. It is blown into the combustion zone of a furnace and burns very rapidly and efficiently.
- **Slack coal** usually refers to bituminous coal one-half inch or smaller in size.
- **Steam coal** refers to coal used in boilers to generate steam to produce electricity or for other purposes.
- **Stoker coal** refers to coal that has been crushed to specific sizes (but not powdered) for burning on a grate in automatic firing equipment.

Coal imports: Amount of foreign coal shipped to the United States, as reported in the U.S. Department of Commerce, Bureau of the Census, "Monthly Report IM 145."

Coal liquefaction: A chemical process that converts coal into clean-burning liquid hydrocarbons, such as synthetic crude oil and methanol.

Coal mining productivity: Coal mining productivity is calculated by dividing total coal production by the total direct labor hours worked by all mine employees.

Coal preparation: The process of sizing and cleaning coal to meet market specifications by removing impurities such as rock, sulfur, etc. It may include crushing, screening, or mechanical cleaning.

Coal Preparation Processes (Cleaning/Beneficiation/Processing): In its broadest sense, preparation is any processing of mined coal to prepare it for market, including crushing and screening or sieving the coal to reach a uniform size, which normally results in removal of some non-coal or waste material. The term coal preparation most commonly refers to processing, including crushing and screening, passing the material through one or more processes to remove impurities, sizing the product, and loading for shipment. Many of the processes separate rock, clay, and other minerals from coal in a liquid medium; hence, the term washing is widely used. In some cases, coal passes through a drying step before loading. See [Coal Washing](#).

Coal producing districts: A classification of coal fields defined in the Bituminous Coal Act of 1937. The districts were originally established to aid in formulating minimum prices of bituminous and subbituminous coal and lignite. Because much statistical information was compiled in terms of these districts, their use for statistical purposes has continued since the abandonment of that legislation in 1943. District 24 was added for the anthracite-producing district in Pennsylvania.

Coal production: The sum of sales, mine consumption, issues to miners, and issues to coke, briquetting, and other ancillary plants at mines. Production data include quantities extracted from surface and underground mines, and normally exclude wastes removed at mines or associated reparation plants.

Coal rank: The classification of coals according to their degree of progressive alteration from lignite to anthracite. In the United States, the standard ranks of coal include lignite, subbituminous coal, bituminous coal, and anthracite and are based on fixed carbon, volatile matter, heating value, and agglomerating (or caking) properties.

Coal sampling: The collection and proper storage and handling of a relatively small quantity of coal for laboratory analysis. Sampling may be done for a wide range of purposes, such as: coal resource exploration and assessment, characterization of their reserves or production of a mine, to characterize the results of coal cleaning processes, to monitor coal shipments or receipts for adherence to coal quality contract specifications, or to subject a coal to specific combustion or reactivity tests related to the customer's intended use. During pre-development phases, such as exploration and resource assessment, sampling typically is from natural outcrops, test pits, old or existing mines in the region, drill cuttings, or drilled cores. Characterization of a mine's reserves or production may use sample collection in the mine, representative cuts from coal conveyors or from handling and loading equipment, or directly from stockpiles or shipments (coal rail cars or barges). Contract specifications rely on sampling from the production flow at the mining or coal handling facility or at the loadout, or from the incoming shipments at the receiver's facility. In all cases, the value of a sample taken depends on its being representative of the coal under

consideration, which in turn requires that appropriate sampling procedures be carefully followed. For coal resource and estimated reserve characterization, appropriate types of samples include:

- **Face channel or channel sample:** a sample taken at the exposed coal in a mine by cutting away any loose or weathered coal then collecting on a clean surface a sample of the coal seam by chopping out a channel of uniform width and depth; a face channel or face sample is taken at or near the working face, the most freshly exposed coal where actual removal and loading of mined coal is taking place. Any partings greater than 3/8 inch and/or mineral concretions greater than 1/2 inch thick and 2 inches in maximum diameter are normally discarded from a channel sample so as better to represent coal that has been mined, crushed, and screened to remove at least gross non-coal materials.
- **Column sample:** a channel or drill core sample taken to represent the entire geologic coalbed; it includes all partings and impurities that may exist in the coalbed.
- **Bench sample:** a face or channel sample taken of just that contiguous portion of a coalbed that is considered practical to mine, also known as a "bench;" For example, bench samples may be taken of minable coal where impure coal that makes up part of the geologic coalbed is likely to be left in the mine, or where thick partings split the coal into two or more distinct minable seams, or where extremely thick coalbeds cannot be recovered by normal mining equipment, so that the coal is mined in multiple passes, or benches, usually defined along natural bedding planes.
- **Composite sample:** a recombined coalbed sample produced by averaging together thickness-weighted coal analyses from partial samples of the coalbed, such as from one or more bench samples, from one or more mine exposures or outcrops where the entire bed could not be accessed in one sample, or from multiple drill cores that were required to retrieve all local sections of a coal seam.

Coal stocks: Coal quantities that are held in storage for future use and disposition. *Note:* When coal data are collected for a particular reporting period (month, quarter, or year), coal stocks are commonly measured as of the last day of this period.

Coal sulfur: Coal sulfur occurs in three forms: organic, sulfate, and pyritic. Organic sulfur is an integral part of the coal matrix and cannot be removed by conventional physical separation. Sulfate sulfur is usually negligible. Pyritic sulfur occurs as the minerals pyrite and marcasite; larger sizes generally can be removed by cleaning the coal.

Coal synfuel: Coal-based solid fuel that has been processed by a coal synfuel plant; and coal-based fuels such as briquettes, pellets, or extrusions, which are formed from fresh or recycled coal and binding materials.

Coal type: The classification is based on physical characteristics or microscopic constituents. Examples of coal types are banded coal, bright coal, cannel coal, and splint coal. The term is also used to classify coal according to heat and sulfur content. See [Coal grade](#).

Coal Washing: The treatment of coal to remove waste material such as:*Dense (heavy) medium processes* use a thick solution, usually a mixture of magnetite and water, to separate coal from impurities, such as sulfur, ash, and mercury, by gravity separation. *Flotation processes* treat fine-

sized coal with an oil-based reagent that attracts air bubbles in a liquid medium; the coal floats to the surface as froth, leaving the refuse below. *Hydraulic processes* use currents of water to separate coal from impurities. *Pneumatic processes* use currents of air to separate coal from impurities.

Coal zone: A series of laterally extensive and (or) lenticular coal beds and associated strata that arbitrarily can be viewed as a unit. Generally, the coal beds in a coal zone are assigned to the same geologic member or formation.

Coal-producing regions: A geographic classification of areas where coal is produced.

- **Appalachian Region:** Consists of Alabama, Eastern Kentucky, Maryland, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia.
- **Northern Appalachian Region:** Consists of Maryland, Ohio, Pennsylvania, and Northern West Virginia.
- **Central Appalachian Region:** Consists of Eastern Kentucky, Virginia, Southern West Virginia, and the Tennessee counties of: Anderson, Campbell, Claiborne, Cumberland, Fentress, Morgan, Overton, Pickett, Putnam, Roane, and Scott.
- **Southern Appalachian Region:** Consists of Alabama, and the Tennessee counties of: Bledsoe, Coffee, Franklin, Grundy, Hamilton, Marion, Rhea, Sequatchie, Van Buren, Warren, and White.
- **Interior Region (with Gulf Coast):** Consists of Arkansas, Illinois, Indiana, Kansas, Louisiana, Mississippi, Missouri, Oklahoma, Texas, and Western Kentucky.
- **Illinois Basin:** Consists of Illinois, Indiana, and Western Kentucky.
- **Western Region:** Consists of Alaska, Arizona, Colorado, Montana, New Mexico, North Dakota, Utah, Washington, and Wyoming.
- **Powder River Basin:** Consists of the Montana counties of Big Horn, Custer, Powder River, Rosebud, and Treasure and the Wyoming counties of Campbell, Converse, Crook, Johnson, Natrona, Niobrara, Sheridan, and Weston.
- **Uinta Basin:** Consists of the Colorado counties of Delta, Garfield, Gunnison, Mesa, Moffat, Pitkin, Rio Blanco, Routt and the Utah counties of Carbon, Duchesne, Emery, Grand, Sanpete, Sevier, Uintah, Utah, and Wasatch.

Coal-Producing States: The States where mined and/or purchased coal originates are defined as follows: Alabama, Alaska, Arizona, Arkansas, Colorado, Illinois, Indiana, Kansas, Kentucky Eastern, Kentucky Western, Louisiana, Maryland, Mississippi, Missouri, Montana, New Mexico, North Dakota, Ohio, Oklahoma, Pennsylvania anthracite, Pennsylvania bituminous, Tennessee, Texas, Utah, Virginia, Washington, West Virginia Northern, West Virginia Southern, and Wyoming.

The following coal-producing States are split in origin of coal, as defined by:

- **Kentucky, Eastern.** All mines in the following counties in Eastern Kentucky: Bell, Boyd, Breathitt, Carter, Clay, Clinton, Elliot, Estill, Floyd, Greenup, Harlan, Jackson,

Johnson, Knott, Knox, Laurel, Lawrence, Lee, Leslie, Letcher, Lewis, Magoffin, Martin, McCreary, Menifee, Morgan, Owsley, Perry, Pike, Powell, Pulaski, Rockcastle, Rowan, Wayne, Whitley, and Wolfe.

- **Kentucky, Western.** All mines in the following counties in Western Kentucky: Breckinridge, Butler, Caldwell, Christian, Crittenden, Daviess, Edmonson, Grayson, Hancock, Hart, Henderson, Hopkins, Logan, McLean, Muhlenberg, Ohio, Todd, Union, Warren, and Webster.
- **Pennsylvania Anthracite.** All mines in the following counties: Carbon, Columbia, Dauphin, Lackawanna, Lebanon, Luzerne, Northumberland, Schuylkill, Sullivan, and Susquehanna. All anthracite mines in Bradford County.
- **Pennsylvania Bituminous.** All mines located in the following counties: Allegheny, Armstrong, Beaver, Bedford, Butler, Cambria, Clarion, Clearfield, Elk, Fayette, Greene, Indiana, Jefferson, Lawrence, Lycoming, Somerset, Venango, Washington, and Westmoreland, and all bituminous mines in Bradford County.
- **West Virginia, Northern.** All mines in the following counties (formerly defined as Coal-Producing Districts 1, 3,): Barbour, Brooke, Braxton, Calhoun, Doddridge, Gilmer, Grant, Hancock, Harrison, Jackson, Lewis, Marion, Marshall, Mineral, Monongalia, Ohio, Pleasants, Preston, Randolph, Ritchie, Roane, Taylor, Tucker, Tyler, Upshur, Webster, Wetzel, Wirt, and Wood.
- **West Virginia, Southern.** All mines in the following counties (formerly Defined as Coal-Producing Districts 7): Boone, Cabell, Clay, Fayette, Greenbrier, Kanawha, Lincoln, Logan, Mason, McDowell, Mercer, Mingo, Nicholas, Pocahontas, Putnam, Raleigh, Summers, Wayne, and Wyoming.

Coalbed Methane Well Gas: Methane produced from coal seams. Coalbed methane is formed during coalification, which is the geologic process that transforms organic material into coal.

Code of federal regulations: A compilation of the general and permanent rules of the executive departments and agencies of the Federal Government as published in the Federal Register. The code is divided into 50 titles that represent broad areas subject to Federal regulation. Title 18 contains the FERC regulations.

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

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

Cogeneration system: A system using a common energy source to produce both electricity and steam for other uses, resulting in increased fuel efficiency.

Cogenerator: A generating facility that produces electricity and another form of useful thermal energy (such as heat or steam), used for industrial, commercial, heating, or cooling purposes. To receive status as a qualifying facility (QF) under the Public Utility Regulatory Policies Act (PURPA), the facility must produce electric energy and "another form of useful thermal energy

through the sequential use of energy" and meet certain ownership, operating, and efficiency criteria established by the Federal Energy Regulatory Commission (FERC).(See the Code of Federal Regulations, Title 18, Part 292.)

Coincidental demand: The sum of two or more demands that occur in the same time interval.

Coincidental peak load: The sum of two or more peak loads that occur in the same time interval.

Coke (coal): A solid carbonaceous residue derived from low-ash, low-sulfur bituminous coal from which the volatile constituents are driven off by baking in an oven at temperatures as high as 2,000 degrees Fahrenheit so that the fixed carbon and residual ash are fused together. Coke is used as a fuel and as a reducing agent in smelting iron ore in a blast furnace. Coke from coal is grey, hard, and porous and has a heating value of 24.8 million Btu per ton.

Coke (petroleum): A residue high in carbon content and low in hydrogen that is the final product of thermal decomposition in the condensation process in cracking. This product is reported as marketable coke or catalyst coke. The conversion is 5 barrels (of 42 U.S. gallons each) per short ton. Coke from petroleum has a heating value of 6.024 million Btu per barrel.

Coke Battery: A series of coke ovens stacked in rows into which coal is loaded and processed into coke.

Coke breeze: The term refers to the fine sizes of coke, usually less than one-half inch, that are recovered from coke plants. It is commonly used for sintering iron ore.

Coke button: A button-shaped piece of coke resulting from standard laboratory tests that indicates the coking or free-swelling characteristics of a coal; expressed in numbers and compared with a standard.

Coke Oven: A chamber of brick or other heat-resistant material in which coal is heated to separate the coal gas, coal water, and tar. The coal gas and coal water fuse together with carbon and the remaining ash, forming a hard residue commonly referred to as coke. Coke is primarily used in steel production. There are two types of coke ovens: (1) beehive ovens, which were originally built round with a spherical top like an old-fashioned beehive, and have an opening in the top and various small openings for draft at the base. The ovens were developed into banks (rows) of joining cubicles. During the heating process of the coal, tar, gas, and other byproducts are lost. (2) Byproduct ovens, which were built in rectangular form with the front and back removable, and which are arranged so that all volatile byproducts can be pumped out.

Coke oven gas: The mixture of permanent gases produced by the carbonization of coal in a coke oven at temperatures in excess of 1,000 degrees Celsius.

Coke plants: Plants where coal is carbonized for the manufacture of coke in slot or beehive ovens.

Coking: Thermal refining processes used to produce fuel gas, gasoline blendstocks, distillates, and petroleum coke from the heavier products of atmospheric and vacuum distillation. Includes:

- **Delayed Coking.** A process by which heavier crude oil fractions can be thermally decomposed under conditions of elevated temperatures and pressure to produce a mixture

of lighter oils and petroleum coke. The light oils can be processed further in other refinery units to meet product specifications. The coke can be used either as a fuel or in other applications such as the manufacturing of steel or aluminum.

- **Flexicoking.** A thermal cracking process which converts heavy hydrocarbons such as crude oil, tar sands bitumen, and distillation residues into light hydrocarbons. Feedstocks can be any pumpable hydrocarbons including those containing high concentrations of sulfur and metals.
- **Fluid Coking.** A thermal cracking process utilizing the fluidized-solids technique to remove carbon (coke) for continuous conversion of heavy, low-grade oils into lighter products.

Coking coal: Bituminous coal suitable for making coke. See [coke \(coal\)](#).

Cold-deck imputation: A statistical procedure that replaces a missing value of an item with a constant value from an external source such as a value from a previous survey. See Imputation.

Combined cycle: An electric generating technology in which electricity is produced from otherwise lost waste heat exiting from one or more gas (combustion) turbines. The exiting heat is routed to a conventional boiler or to a heat recovery steam generator for utilization by a steam turbine in the production of electricity. This process increases the efficiency of the electric generating unit.

Combined cycle unit: An electric generating unit that consists of one or more combustion turbines and one or more boilers with a portion of the required energy input to the boiler(s) provided by the exhaust gas of the combustion turbine(s).

Combined heat and power (CHP) plant: A plant designed to produce both heat and electricity from a single heat source. Note: This term is being used in place of the term "cogenerator" that was used by EIA in the past. CHP better describes the facilities because some of the plants included do not produce heat and power in a sequential fashion and, as a result, do not meet the legal definition of cogeneration specified in the Public Utility Regulatory Policies Act (PURPA).

Combined household energy expenditures: The total amount of funds spent for energy consumed in, or delivered to, a housing unit during a given period of time and for fuel used to operate the motor vehicles that are owned or used on a regular basis by the household. The total dollar amount for energy consumed in a housing unit includes state and local taxes but excludes merchandise repairs or special service charges. Electricity, and natural gas expenditures are for the amount of those energy sources consumed. Fuel oil, kerosene, and LPG expenditures are for the amount of fuel purchased, which may differ from the amount of fuel consumed. The total dollar amount of fuel spent for vehicles is the product of fuel consumption and price.

Combined hydroelectric plant: A hydroelectric plant that uses both pumped water and natural streamflow for the production of power.

Combined pumped-storage plant: A pumped-storage hydroelectric power plant that uses both pumped water and natural stream flow to produce electricity.

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

Combustion chamber: An enclosed vessel in which chemical oxidation of fuel occurs.

Commercial building: A building with more than 50 percent of its floor space used for commercial activities. Commercial buildings include, but are not limited to, stores, offices, schools, churches, gymnasiums, libraries, museums, hospitals, clinics, warehouses, and jails. Government buildings are included except for buildings on military bases or reservations.

Commercial facility: An economic unit that is owned or operated by one person or organization and that occupies two or more commercial buildings at a single location. A university and a large hospital complex are examples of a commercial multi-building facility.

Commercial operation (nuclear): The phase of reactor operation that begins when power ascension ends and the operating utility formally declares the nuclear power plant to be available for the regular production of electricity. This declaration is usually related to the satisfactory completion of qualification tests on critical components of the unit.

Commercial sector: An energy-consuming sector that consists of service-providing facilities and equipment of businesses; Federal, State, and local governments; and other private and public organizations, such as religious, social, or fraternal groups. The commercial sector includes institutional living quarters. It also includes sewage treatment facilities. Common uses of energy associated with this sector include space heating, water heating, air conditioning, lighting, refrigeration, cooking, and running a wide variety of other equipment. Note: This sector includes generators that produce electricity and/or useful thermal output primarily to support the activities of the above-mentioned commercial establishments.

Commingling: The mixing of one utility's generated supply of electric energy with another utility's generated supply within a transmission system.

Commissioned agent: An agent who wholesales or retails a refined petroleum product under a commission arrangement. The agent does not take title to the product or establish the selling price, but receives a percentage of fixed fee for serving as an agent.

Common equity (book value): The retained earnings and common stock earnings plus the balances in common equity reserves and all other common stock accounts. This also includes the capital surplus, the paid-in surplus, the premium on common stocks, except those balances specifically related to preferred or preference stocks; less any common stocks held in the treasury.

Compact fluorescent bulbs: These are also known as "screw-in fluorescent replacements for incandescent" or "screw-ins." Compact fluorescent bulbs combine the efficiency of fluorescent lighting with the convenience of a standard incandescent bulb. There are many styles of compact fluorescent, including exit light fixtures and floodlights (lamps containing reflectors). Many screw into a standard light socket, and most produce a similar color of light as a standard incandescent bulb. Compact fluorescent bulbs come with ballasts that are electronic (lightweight, instant, no-flicker starting, and 10 to 15% more efficient) or magnetic (much heavier and slower starting). Other types of compact fluorescent bulbs include adaptive circulation and PL and SL lamps and ballasts. Compact fluorescent bulbs are designed for residential uses; they are also

used in table lamps, wall sconces, and hall and ceiling fixtures of hotels, motels, hospitals, and other types of commercial buildings with residential-type applications.

Company: See [Firm](#).

Company automotive (retail) outlet: Any retail outlet selling motor fuel under the brand name of a company reporting in the EIA Financial Reporting System.

Company outlet: See [Company-operated automotive outlet](#).

Company-lessee automotive outlet: One of three types of company automotive (retail) outlets. This type of outlet is operated by an independent marketer who leases the station and land and has use of tanks, pumps, signs, etc. A lessee dealer typically has a supply agreement with a refiner or a distributor and purchases products at dealer tank wagon prices. The term includes outlets operated by commissioned agents and is limited to those dealers who are supplied directly by a refiner or any affiliate or subsidiary company of a refiner.

Company-open automotive outlet: One of three types of company automotive (retail) outlets. This type of outlet is operated by an independent marketer who owns or leases (from a third party that is not a refiner) the station or land of a retail outlet and has use of tanks, pumps, signs, etc. An open dealer typically has a supply agreement with a refiner or a distributor and purchases products based on either rack or dealer tank wagon prices.

Company-operated automotive outlet: One of three types of company automotive (retail) outlets. This type of outlet is operated by salaried or commissioned personnel paid by the reporting company.

Company-operated outlet: See [Company-operated retail outlet](#).

Company-operated retail outlet: Any retail outlet (i.e., service station) which sells motor vehicle fuels and is under the direct control of a firm that sets the retail product price and directly collects all or part of the retail margin. The category includes retail outlets operated by (1) salaried employees of the firm and/or its subsidiaries and affiliates, (2) licensed or commissioned agents, and/or (3) personnel services contracted by the firm.

Competitive transition charge: A non-bypassable charge levied on each customer of the distribution utility, including those who are served under contracts with nonutility suppliers, for recovery of the utility's stranded costs that develop because of competition.

Completion (oil/gas production): The term refers to the installation of permanent equipment for the production of oil or gas. If a well is equipped to produce only oil or gas from one zone or reservoir, the definition of a "well" (classified as an oil well or gas well) and the definition of a "completion" are identical. However, if a well is equipped to produce oil and/or gas separately from more than one reservoir, a "well" is not synonymous with a "completion." (See [Well](#).)

Completion date (oil/gas production): The date on which the installation of permanent equipment has been completed as reported to the appropriate regulatory agency. The date of completion of a dry hole is the date of abandonment as reported to the appropriate agency. The

date of completion of a service well is the date on which the well is equipped to perform the service for which it was intended.

Compliance coal: A coal or a blend of coals that meets sulfur dioxide emission standards for air quality without the need for flue gas desulfurization.

Compressed natural gas (CNG): [Natural gas](#) compressed to a pressure at or above 200-248 bar (i.e., 2900-3600 pounds per square inch) and stored in high-pressure containers. It is used as a fuel for natural gas-powered vehicles.

Compressor station: Any combination of facilities that supply the energy to move gas in transmission or distribution lines or into storage by increasing the pressure.

Concentrating solar power or solar thermal power system: A solar energy conversion system characterized by the optical concentration of solar rays through an arrangement of mirrors to generate a high temperature working fluid. Also see [Solar trough](#), [Solar power tower](#), or [Solar dish](#). Concentrating solar power (but not Solar thermal power) may also refer to a system that focuses solar rays on a photovoltaic cell to increase conversion efficiency.

Concentrator: A reflective or refractive device that focuses incident insolation onto an area smaller than the reflective or refractive surface, resulting in increased insolation at the point of focus.

Concession: The operating right to explore for and develop petroleum fields in consideration for a share of production in kind (equity oil).

Concessionary purchases: The quantity of crude oil exported during a reporting period, which was acquired from the producing government under terms that arise from the firm's participation in a concession. It includes preferential crude where the reporting firm's access to such crude is derived from a former concessionary relationship.

Condensate (lease condensate): Light liquid hydrocarbons recovered from lease separators or field facilities at associated and non-associated natural gas wells. Mostly pentanes and heavier hydrocarbons. Normally enters the crude oil stream after production.

Condenser cooling water: A source of water external to a boiler's feed system is passed through the steam leaving the turbine in order to cool and condense the steam. This reduces the steam's exit pressure and recaptures its heat, which is then used to preheat fluid entering the boiler, thereby increasing the plant's thermodynamic efficiency.

Conditionally effective rates: An electric rate schedule that has been put into effect by the FERC subject to refund pending final disposition or refileing.

Conductor: Metal wires, cables, and bus-bar used for carrying electric current. Conductors may be solid or stranded, that is, built up by an assembly of smaller solid conductors.

Conference of the parties (COP): The collection of nations that have ratified the Framework Convention on Climate Change (FCCC). The primary role of the COP is to keep implementation of the FCCC under review and make the decisions necessary for its effective implementation. Also see [Framework Convention on Climate Change \(FCCC\)](#).

Configuration maps: Geographic information containing transmission line, substation, and terminal information. It shows the normal operating voltages and includes information about other operational and political boundaries.

Congestion: A condition that occurs when insufficient transfer capacity is available to implement all of the preferred schedules for electricity transmission simultaneously.

Connected load: The sum of the continuous ratings or the capacities for a system, part of a system, or a customer's electric power consuming apparatus.

Connection: The physical connection (e.g., transmission lines, transformers, switch gear, etc.) between two electric systems permitting the transfer of electric energy in one or both directions.

Conservation: A reduction in energy consumption that corresponds with a reduction in service demand. Service demand can include buildings-sector end uses such as lighting, refrigeration, and heating; industrial processes; or vehicle transportation. Unlike energy efficiency, which is typically a technological measure, conservation is better associated with behavior. Examples of conservation include adjusting the thermostat to reduce the output of a heating unit, using occupancy sensors that turn off lights or appliances, and car-pooling.

Conservation feature: A feature in the building designed to reduce the usage of energy.

Conservation program: A program in which a utility company furnishes home weatherization services free or at reduced cost or provides free or low cost devices for saving energy, such as energy efficient light bulbs, flow restrictors, weather stripping, and water heater insulation.

Consolidated entity: See [Firm](#).

Consolidated Metropolitan Statistical Area (CMSA): An area that meets the requirements of a metropolitan statistical area, has a population of one million or more, and consists of two or more component parts that are recognized as primary metropolitan statistical areas.

Construction: An energy-consuming subsector of the industrial sector that consists of all facilities and equipment used to perform land preparation and construct, renovate, alter, install, maintain, or repair major infrastructure or individual systems therein. Infrastructure includes buildings; industrial plants; and other major structures, such as tanks, towers, monuments, roadways, tunnels, bridges, dams, pipelines, and transmission lines.

Construction costs (of the electric power industry): All direct and indirect costs incurred in acquiring and constructing electric utility plant and equipment and proportionate shares of common utility plants. Included are the cost of land and improvements, nuclear fuel and spare parts, allowance for funds used during construction, and general overheads capitalized, less the cost of acquiring plant and equipment previously operated in utility service.

Construction expenditures (of the electric power industry): The gross expenditures for construction costs (including the cost of replacing worn out plants), and electric construction costs, and land held for future use.

Construction pipeline (of a nuclear reactor): The various stages involved in the acquisition of a nuclear reactor by a utility. The events that define these stages are the ordering of a reactor, the licensing process, and the physical construction of the nuclear generating unit. A reactor is said

to be "in the pipeline" when the reactor is ordered and "out of the pipeline" when it completes low power testing and begins operation toward full power.

Construction work in progress (CWIP): The balance shown on a utility's balance sheet for construction work not yet completed but in process. This balance line item may or may not be included in the rate base.

Constructive surplus or deficit: The amounts representing the exchange of services, supplies, etc., between the utility department and the municipality and its other departments without charge or at a reduced charge. Charges to this account include utility and other services, supplies, etc., furnished by the utility department to the municipality or its other departments without charge, or the amount of the reduction, if furnished at a reduced charge. Credits to the account consist of services, supplies, office space, etc., furnished by the municipality to the utility department without charge on the amount of the reduction, if furnished at a reduced charge.

Consumer (energy): Any individually metered dwelling, building, establishment, or location using natural gas, synthetic natural gas, and/or mixtures of natural and supplemental gas for feedstock or as fuel for any purpose other than in oil or gas lease operations; natural gas treating or processing plants; or pipeline, distribution, or storage compressors.

Consumer charge: An amount charged periodically to a consumer for such utility costs as billing and meter reading, without regard to demand or energy consumption.

Consumer Price Index (CPI): These prices are collected in 85 urban areas selected to represent all urban consumers about 80 percent of the total U.S. population. The service stations are selected initially and on a replacement basis, in such a way that they represent the purchasing habits of the CPI population. Service stations in the current sample include those providing all types of service (i.e., full, mini, and self service).

Consumption: See [Energy consumption](#).

Consumption per square foot: The aggregate ratio of total consumption for a particular set of buildings to the total floorspace of those buildings.

Continuous delivery energy sources: Those energy sources provided continuously to a building.

Continuous mining: A form of room pillar mining in which a continuous mining machine extracts and removes coal from the working face in one operation; no blasting is required.

Contract price: The delivery price determined when a contract is signed. It can be a fixed price or a base price escalated according to a given formula.

Contract receipts: Purchases based on a negotiated agreement that generally covers a period of 1 or more years.

Contracted gas: Any gas for which Interstate Pipeline has a contract to purchase from any domestic or foreign source that cannot be identified to a specific field or group. This includes tailgate plant purchases, single meter point purchases, pipeline purchases, natural gas imports, SNG purchases, and LNG purchases.

Contribution to net income: The FRS (Financial Reporting System survey) segment equivalent to net income. However, some consolidated items of revenue and expense are not allocated to the segments, and therefore they are not equivalent in a strict sense. The largest item not allocated to the segments is interest expense since this is regarded as a corporate level item for FRS purposes.

Control: Including the terms "controlling," "controlled by," and "under common control with," means the possession, direct or indirect, of the power to direct or cause the direction of the management and policies of a person, whether through the ownership of voting shares, by contract, or otherwise.

Control total: The number of elements in the population or a subset of the population. The sample weights for the observed elements in a survey are adjusted so that they add up to the control total. The value of a control total is obtained from an outside source. The control totals are given by the number of households in one of the 12 cells by categorizing households by the four Census regions and by three categories of metropolitan status (Metropolitan Statistical Area central city, Metropolitan Statistical Area outside central city, and non Metropolitan Statistical Area). The control totals are obtained from the Current Population Survey.

Conventional blendstock for oxygenate blending (CBOB): Motor gasoline blending components intended for blending with oxygenates to produce finished conventional motor gasoline.

Conventional gasoline: Finished motor gasoline not included in the oxygenated or reformulated gasoline categories. Note: This category excludes reformulated gasoline blendstock for oxygenate blending (RBOB) as well as other blendstock.

Conventional hydroelectric plant: A plant in which all of the power is produced from natural streamflow as regulated by available storage.

Conventional mill (uranium): A facility engineered and built principally for processing of uranium ore materials mined from the earth and the recovery, by chemical treatment in the mill's circuits, of uranium and/or other valued coproduct components from the processed one.

Conventional mining: The oldest form of room pillar mining, which consists of a series of operations that involve cutting the coal bed, so it breaks easily when blasted with explosives or high pressure air, and then loading the broken coal.

Conventional oil and natural gas production: Crude oil and natural gas that is produced by a well drilled into a geologic formation in which the reservoir and fluid characteristics permit the oil and natural gas to readily flow to the wellbore.

Conventionally fueled vehicle: A vehicle that runs on petroleum-based fuels such as motor gasoline or diesel fuel.

Conversion company: An organization that performs vehicle conversions on a commercial basis.

Conversion factor: A factor for converting data between one unit of measurement and another (such as between short tons and British thermal units, or between barrels and gallons). (See

[Appendices \(heat rates, conversion factors, and more\)](#) for further information on conversion factors.) See [Btu Conversion Factor](#) and [Thermal Conversion Factor](#).

Converted (alternative-fuel) vehicle: A vehicle originally designed to operate on gasoline/diesel that was modified or altered to run on an alternative fuel after its initial delivery to an end-user.

Cooling: Conditioning of room air for human comfort by a refrigeration unit (such as an air conditioner or heat pump) or by circulating chilled water through a central cooling or district cooling system. Use of fans or blowers by themselves, without chilled air or water, is not included in this definition of cooling.

Cooling Degree Days (CDD): A measure of how warm a location is over a period of time relative to a base temperature, most commonly specified as 65 degrees Fahrenheit. The measure is computed for each day by subtracting the base temperature (65 degrees) from the average of the day's high and low temperatures, with negative values set equal to zero. Each day's cooling degree days are summed to create a cooling degree day measure for a specified reference period. Cooling degree days are used in energy analysis as an indicator of air conditioning energy requirements or use.

Cooling pond: A natural or manmade body of water that is used for dissipating waste heat from power plants.

Cooling system: An equipment system that provides water to the condensers and includes water intakes and outlets; cooling towers; and ponds, pumps, and pipes.

Cooperative electric utility: An electric utility legally established to be owned by and operated for the benefit of those using its service. The utility company will generate, transmit, and/or distribute supplies of electric energy to a specified area not being serviced by another utility. Such ventures are generally exempt from Federal income tax laws. Most electric cooperatives have been initially financed by the Rural Utilities Service (prior Rural Electrification Administration), U.S. Department of Agriculture.

Coordination service: The sale, exchange, or transmission of electricity between two or more electric utilities that typically have sufficient generation and transmission capacity to supply their load requirements under normal conditions.

Coordination service pricing: The typical price components of a bulk power coordination sale are an energy charge, a capacity, or reservation charge, and an adder. The price for a particular sale may embody some or all of these components. The energy charge is made on a per-kilowatt basis and is intended to recover the seller's system incremental variable costs of making a sale. Because the nonfuel expenses are usually hard to quantify, and small relative to fuel expense, energy charges quoted are usually based on fuel cost. A capacity charge is set at a certain level per kilowatt and is normally paid whether or not energy is taken by the buyer. An adder is added to that energy charge to recover the hard quantify nonfuel variable costs. There are three types of adders percentage, fixed, and split savings. A percentage adder increases the energy charge by a certain percentage. A fixed adder adds a fixed amount per kilowatt hour to the energy charge.

Split savings adders are used only in economy energy transactions. They split production costs savings between the seller and the buyer by adding one half of the savings to the energy cost.

Cord of wood: A cord of wood measures 4 feet by 4 feet by 8 feet, or 128 cubic feet.

Correlation (statistical term): In its most general sense, correlation denotes the interdependence between quantitative or qualitative data. It would include the association of dichotomized attributes and the contingency of multiple classified attributes. The concept is quite general and may be extended to more than two variates. The word is most frequently used in a somewhat narrower sense to denote the relationship between measurable variates or ranks.

Cost model for undiscovered resources: A computerized algorithm that uses the uranium endowment estimated for a given geological area and selected industry economic indexes to develop random variables that describe the undiscovered resources ultimately expected to be discovered in that area at chosen forward cost categories.

Cost of capital: The rate of return a utility must offer to obtain additional funds. The cost of capital varies with the leverage ratio, the effective income tax rate, conditions in the bond and stock markets, growth rate of the utility, its dividend strategy, stability of net income, the amount of new capital required, and other factors dealing with business and financial risks. It is a composite of the cost for debt interest, preferred stock dividends, and common stockholders' earnings that provide the facilities used in supplying utility service.

Cost of debt: The interest rate paid on new increments of debt capital multiplied by 1 minus the tax rate.

Cost of preferred stock: The preferred stock dividends divided by the net price of the preferred stock.

Cost of retained earnings: The residual of an entity's earnings over expenditures, including taxes and dividends, that are reinvested in its business. The cost of these funds is always lower than the cost of new equity capital, due to taxes and transactions costs. Therefore, the cost of retained earnings is the yield that retained earnings accrue upon reinvestment.

Cost of service: A ratemaking concept used for the design and development of rate schedules to ensure that the filed rate schedules recover only the cost of providing the electric service at issue. This concept attempts to correlate the utility's costs and revenue with the service provided to each of the various customer classes.

Cost, insurance, freight (CIF): A type of sale in which the buyer of the product agrees to pay a unit price that includes the f.o.b. value of the product at the point of origin plus all costs of insurance and transportation. This type of transaction differs from a "delivered" purchase in that the buyer accepts the quantity as determined at the loading port (as certified by the Bill of Lading and Quality Report) rather than pay on the basis of the quantity and quality ascertained at the unloading port. It is similar to the terms of an f.o.b. sale except that the seller, as a service for which he is compensated, arranges for transportation and insurance.

Cost-based rates (electric): A ratemaking concept used for the design and development of rate schedules to ensure that the filed rate schedules recover only the cost of providing the service.
[FERC definition](#)

Cost-of-service regulation: A traditional electric utility regulation under which a utility is allowed to set rates based on the cost of providing service to customers and the right to earn a limited profit.

Costs (imports of natural gas): All expenses incurred by an importer up to the U.S. point of delivery for the reported quantity {of natural gas} imported.

CPI: [Consumer Price Index](#)

Criteria pollutant: A pollutant determined to be hazardous to human health and regulated under EPA's National Ambient Air Quality Standards. The 1970 amendments to the Clean Air Act require EPA to describe the health and welfare impacts of a pollutant as the "criteria" for inclusion in the regulatory regime.

Crop residue: Organic residue remaining after the harvesting and processing of a crop.

Crude oil: A mixture of hydrocarbons that exists in liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Depending upon the characteristics of the crude stream, it may also include 1. Small amounts of hydrocarbons that exist in gaseous phase in natural underground reservoirs but are liquid at atmospheric pressure after being recovered from oil well (casing head) gas in lease separators and are subsequently comingled with the crude stream without being separately measured. Lease condensate recovered as a liquid from natural gas wells in lease or field separation facilities and later mixed into the crude stream is also included; 2. Small amounts of nonhydrocarbons produced with the oil, such as sulfur and various metals; 3. Drip gases, and liquid hydrocarbons produced from tar sands, oil sands, gilsonite, and oil shale.

Liquids produced at natural gas processing plants are excluded. Crude oil is refined to produce a wide array of petroleum products, including heating oils; gasoline, diesel and jet fuels; lubricants; asphalt; ethane, propane, and butane; and many other products used for their energy or chemical content.

Crude oil acquisitions (unfinished oil acquisitions): The volume of crude oil either:

- acquired by the respondent for processing for his own account in accordance with accounting procedures generally accepted and consistently and historically applied by the refiner concerned, or
- in the case of a processing agreement, delivered to another refinery for processing for the respondent's own account.

Crude oil that has not been added by a refiner to inventory and that is thereafter sold or otherwise disposed of without processing for the account of that refiner shall be deducted from its crude oil purchases at the time when the related cost is deducted from refinery inventory in accordance

with accounting procedures generally applied by the refiner concerned. Crude oil processed by the respondent for the account of another is not a crude oil acquisition.

Crude oil f.o.b. price: The crude oil price actually charged at the oil producing country's port of loading. Includes deductions for any rebates and discounts or additions of premiums, where applicable. It is the actual price paid with no adjustment for credit terms.

Crude oil input: The total crude oil put into processing units at refineries.

Crude oil landed cost: The price of crude oil at the port of discharge, including charges associated with purchasing, transporting, and insuring a cargo from the purchase point to the port of discharge. The cost does not include charges incurred at the discharge port (e.g., import tariffs or fees, wharfage charges, and demurrage).

Crude oil less lease condensate: A mixture of hydrocarbons that exists in liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Such hydrocarbons as lease condensate and natural gasoline recovered as liquids from natural gas wells in lease or field separation facilities and later mixed into the crude stream are excluded. Depending upon the characteristics of the crude stream, crude oil may also include: 1. Small amounts of hydrocarbons that exist in gaseous phase in natural underground reservoirs but are liquid at atmospheric pressure after being recovered from oil well (casinghead) gas in lease separators and are subsequently comingled with the crude stream without being separately measured; 2. Small amounts of nonhydrocarbons produced with the oil, such as sulfur and various metals.

Crude oil losses: Represents the volume of crude oil reported by petroleum refineries as being lost in their operations. These losses are due to spills, contamination, fires, etc., as opposed to refining processing losses.

Crude oil production: The volume of crude oil produced from oil reservoirs during given periods of time. The amount of such production for a given period is measured as volumes delivered from lease storage tanks (i.e., the point of custody transfer) to pipelines, trucks, or other media for transport to refineries or terminals with adjustments for (1) net differences between opening and closing lease inventories, and (2) basic sediment and water (BSw).

Crude oil qualities: Refers to two properties of crude oil, the sulfur content, and API gravity, which affect processing complexity and product characteristics.

Crude oil refinery input: The total crude oil put into processing units at refineries.

Crude oil stocks: Stocks of crude oil and lease condensate held at refineries, in pipelines, at pipeline terminals, and on leases.

Crude oil stream: Crude oil produced in a particular field or a collection of crude oils with similar qualities from fields in close proximity, which the petroleum industry usually describes with a specific name, such as West Texas Intermediate or Saudi Light.

Crude oil used directly: Crude oil consumed as fuel by crude oil pipelines and on crude oil leases.

Crude oil, refinery receipts: Receipts of domestic and foreign crude oil at a refinery. Includes all crude oil in transit except crude oil in transit by pipeline. Foreign crude oil is reported as a receipt only after entry through customs. Crude oil of foreign origin held in bonded storage is excluded.

Crystalline fully refined wax: A light colored paraffin wax having the following characteristics:

- viscosity at 210 degrees Fahrenheit (D88)-59.9 SUS (10.18 centistokes) maximum;
- oil content (D721)-0.5 percent maximum;
- other +20 color, Saybolt minimum.

Crystalline other wax: A paraffin wax having the following characteristics:

- viscosity at 210 deg. F(D88)-59.9 SUS (10.18centistokes) maximum;
- oil content (D721)-0.51 percent minimum to 15 percent maximum.

Cubic foot (cf), natural gas: The amount of natural gas contained at standard temperature and pressure (60 degrees Fahrenheit and 14.73 pounds standard per square inch) in a cube whose edges are one foot long.

Cull wood: Wood logs, chips, or wood products that are burned.

Culm: 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.

Cultivar: A horticulturally or agriculturally derived variety of a plant.

Cumulative depletion: The sum in tons of coal extracted and lost in mining as of a stated date for a specified area or a specified coal bed.

Current (electric): A flow of electrons in an electrical conductor. The strength or rate of movement of the electricity is measured in amperes.

Current assets: Cash and other assets that are expected to be turned into cash, sold, or exchanged within the normal operating cycle of the utility, usually one year. Current assets include cash, marketable securities, receivables, inventory, and current prepayments.

Current liabilities: A debt or other obligation that must be discharged within one year or the normal operating cycle of the utility by expending a current asset or the incurrence of another short-term obligation. Current liabilities include accounts payable, short-term notes payable, and accrued expenses payable such as taxes payable and salaries payable.

Current ratio: The ratio of current assets divided by current liabilities that shows the ability of a utility to pay its current obligations from its current assets. A measure of liquidity, the higher the ratio, the more assurance that current liabilities can be paid.

Customer choice: The right of customers to purchase energy from a supplier other than their traditional supplier or from more than one seller in the retail market.

Customs district (coal): Customs districts, as defined by the Bureau of the Census, U.S. Department of Commerce, " Monthly Report EM 545, " are as follows:

- **Eastern:** Bridgeport, CT, Washington, DC, Boston, MA, Baltimore, MD, Portland, ME, Buffalo, NY, New York City, NY, Ogdensburg, NY, Philadelphia, PA, Providence, RI, Norfolk, VA, St. Albans, VT.
- **Southern:** Mobile, AL, Savannah, GA, Miami, FL, Tampa, FL, New Orleans, LA, Wilmington, NC, San Juan, PR, Charleston, SC, Dallas-Fort Worth, TX, El Paso, TX, Houston-Galveston, TX, Laredo, TX, Virgin Islands.
- **Western:** Anchorage, AK, Nogales, AZ, Los Angeles, CA, San Diego, CA, San Francisco, CA, Honolulu, HI, Great Falls, MT, Portland, OR, Seattle, WA.
- **Northern:** Chicago, IL, Detroit, MI, Duluth, MN, Minneapolis, MN, St. Louis, MO, Pembina, ND, Cleveland, OH, Milwaukee, WI.

Customs import value (C.I.V.): 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 LDQUO; on the spot RDQUO; at current market rates. See also [spot](#) market terms associated with specific energy types.

Cut-off grade (uranium): The lowest grade, in percent U₃O₈, of uranium ore at a minimum specified thickness that can be mined at a specified cost.

CWIP: [Construction Work In Progress](#)

Cycle: The time period running from the startup of one reactor cycle to the startup of the following cycle.

Cycle/reactor history: A group of assemblies that have been irradiated in the same cycles in an individual reactor and are said to have the same cycle/reactor history.

Cycling (natural gas): The practice of producing natural gas for the extraction of natural gas liquids, returning the dry residue to the producing reservoir to maintain reservoir pressure and increase the ultimate recovery of natural gas liquids. The reinjected gas is produced for disposition after cycling operations are completed.
