

# Glossary

**Agricultural:** As used in this survey, activities involving the production, processing, sale, storage, or housing of agricultural products, including livestock. (See **Commercial**, **Manufacturing/Industrial**, **Residential**, and **Sector**.)

**All Sectors:** See **Sector**.

**Barrel:** A volumetric unit of measure for crude oil and petroleum products equivalent to 42 U.S. gallons. (See **Gallon**.)

**Boiler:** A type of space-heating equipment consisting of a vessel or tank where heat produced from the combustion of fuels such as natural gas, fuel oil, or coal is used to generate hot water or steam. Many buildings have their own boilers, while other buildings have steam or hot water piped in from a central plant. Steam or hot water piped into a building from a central plant is considered district heat. (See **District Heat**.)

**British Thermal Unit:** The amount of energy required to increase the temperature of 1 pound of water by 1 degree Fahrenheit, at standard conditions of temperature and pressure. Energy consumption is expressed in Btu in this report to allow for consumption comparisons among fuels that are measured in different units. (See **Btu Conversion Factors**, **Metric Conversion Factors**.)

**Btu:** See **British Thermal Unit**.

**Btu Conversion Factors:** The Btu conversion factors for this survey are as follows:

	Btu Equivalent	Unit
Electricity	3,412	kilowatthour
Natural Gas	1,030	cubic foot
Distillate Fuel Oils (Nos. 1,2, and 4)	138,690	gallon
Residual Fuel Oils (Nos. 5 and 6)	149,690	gallon
District Heat (Steam and Hot Water)	1,000	pound

Sources: Energy Information Administration, *Monthly Energy Review* (June 1991), pp. 125-129 for electricity, natural gas, distillate, and residual; and *Methodological Issues In the Nonresidential Buildings Energy Consumption Survey* (September 1983) pp. 173-175 for district steam.

For district chilled water conversions, see **Coefficient of Performance** and Appendix B, "Data Quality."

**Building:** For this survey, a structure totally enclosed by walls extending from the foundation to the roof, containing over 1,000 square feet of floorspace, and intended for human occupancy. Structures that were included in the survey as a specific exception were parking garages not totally enclosed by walls and a roof, as well as structures erected on pillars to elevate the first fully enclosed level, but leaving the sides at ground level open.

Excluded from the survey as nonbuildings were the following: structures (other than the exceptions just noted) that were not totally enclosed by walls and a roof (such as oil refineries, steel mills, and water towers); street lights, pumps, billboards, bridges, swimming pools, and construction sites; mobile homes and trailers, even if they housed commercial activity; and oil storage tanks. (See **Commercial Building**.)

**Census Region:** A geographic area consisting of several States defined by the U.S. Department of Commerce, Bureau of the Census. The States are grouped into four regions:

<b>Region</b>	<b>States</b>
Northeast	Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Vermont, and Rhode Island
Midwest	Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin
South	Alabama, Arkansas, Delaware, the District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia
West	Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming

**Central Physical Plant:** A plant that is owned by, and on the grounds of, a multibuilding facility and that provides district heating, district cooling, or electricity to one or more other buildings on the same facility. The central physical plant may be by itself in a separate building or may be located in a building where other activities occur. In this report, the forms of energy provided by the central physical plant to the other buildings on the same facility are referred to as outputs. The forms of energy consumed at the central physical plant in order to provide the outputs are referred to as inputs. (See **District Heat**, **District Chilled Water**, and **Multibuilding Facility**.)

**Coal:** In this report, the term includes anthracite, bituminous, and subbituminous coal, as well as the derivative of coal known as coke.

**Coefficient of Performance:** The ratio of the rate of heat removal (Btu of cooling) to the rate of energy input (Btu). One ton-hour (district chilled water) is equivalent to 12,000 Btu of cooling. (See **Btu Conversion Factors** and **District Chilled Water**.)

**Cogeneration:** The sequential generation of electric power and useful heat by a single process. Neither generation of electricity without use of the byproduct heat, nor waste-heat recovery from processes other than electricity generation is included in the definition of cogeneration. (See **Electricity Generation**.)

**Commercial Building:** A building with more than 50 percent of its floorspace 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 were included except for buildings on site with restricted access, such as some military bases or reservations. Farms and buildings located on farms (such as silos, grain elevators, and barns) were excluded from the survey. (See **Building, Commercial, Residential, Manufacturing/Industrial, Agricultural**, and **Principal Building Activity**.)

**Commercial:** Neither residential, industrial, nor agricultural. (See **Residential, Manufacturing/Industrial, Agricultural**, and **Commercial Building**.)

**Commercial Sector:** See **Sector**.

**Connected to the Grid:** Electrically interconnected with an electric utility. (See **Electricity Generation**.)

**Conversion Factors:** See **Btu Conversion Factors** and **Metric Conversion Factors**.

**COP:** See **Coefficient of Performance**.

**Cubic Foot:** As a natural gas measure, the amount of gas contained in a cube with an edge that is 1 foot long at standard temperature and pressure conditions (60 degrees Fahrenheit and 14.73 pounds standard per square inch.) The thermal content varies by the composition of the gas. (See **Natural Gas** and **Btu**.)

**District Chilled Water:** Chilled water from an outside source used as an energy source for cooling in a building. The water is chilled in a central plant and piped into the building. Chilled water may be purchased from a utility or provided by a central physical plant in a separate building that is part of the same multibuilding facility (for example, a hospital complex or university). (See **Central Physical Plant** and **Multibuilding Facility**.)

**District Heat:** Steam or hot water from an outside source used as an energy source for space heating or another end use in a building. The steam or hot water is produced in a central plant and piped into the building. The district heat may be purchased from a utility or provided by a central physical plant in a separate building that is part of the same multibuilding facility (for example, a hospital complex or university). (See **Central Physical Plant** and **Multibuilding Facility**.)

**District Hot Water:** District heat in the form of hot water. (See **District Heat**.)

**District Steam:** District heat in the form of steam. (See **District Heat**.)

**Electricity:** Electric energy, usually measured in kilowatthours. In this report, electricity is reported both as energy supplied to a central physical plant by an electric utility via power lines and as electricity generated by a central physical plant on a multibuilding facility. (See **Central Physical Plant**, **Electricity Generation**, and **Kilowatthour**.)

**Electricity Generation:** The onsite production of electricity using electricity generators on either a regular or emergency basis. (See **Electricity** and **Cogeneration**.)

**Facility:** See **Multibuilding Facility**.

**Floorspace:** All the area enclosed by the exterior walls of a building, including indoor parking facilities, basements, hallways, lobbies, stairways, and elevator shafts. (See **Square Footage**.)

**Fuel Oil:** A liquid petroleum product less volatile than gasoline, used as an energy source. In this report, fuel oil includes distillate fuel oil (No. 1, No. 2, and No. 4), residual fuel oil (No. 5 and No. 6), and kerosene.

**Gallon:** A volumetric measure equal to 4 quarts (231 cubic inches) used to measure fuel oil. One barrel equals 42 gallons. (See **Barrel**.)

**Government Owned:** Owned by a Federal, State, or local government agency. The building may be occupied by agencies of more than one government and may also be shared with nongovernment establishments.

**Hot-Deck Imputation:** An imputation procedure using random resampling from nonmissing cases to fill in values for missing cases. (See **Imputation** and Appendix C, "Estimation.")

**Imputation:** A statistical method used to fill in values for missing items, designed to minimize the bias of estimates based on the filled-in data set. (See **Hot-Deck Imputation**, and Appendix C, "Estimation.")

**Industrial:** See **Manufacturing/Industrial**.

**Industrial Sector:** See **Sector**.

**Input:** See **Central Physical Plant**.

**In Scope:** Meeting the requirements for eligibility in the CBECS, and, therefore, included in the population covered by the survey. For the 1989 survey, these eligibility requirements were (a) that the structure be a building, according to the CBECS definition; (b) that the building be larger than 1,000 square feet; and (c) that more than 50 percent of the floorspace be used for commercial activities. (See **Building, Commercial, Floorspace.**)

**Kilowatthour:** A unit of work or energy, measured as 1 kilowatt (1,000 watts) of power expended for 1 hour.

**Manufacturing/Industrial:** As used in this survey, activities involving the processing or procurement of goods, merchandise, raw materials, or food. These activities include: food processing; leather/textile mills; light assembly factories, such as those for apparel and electronic instruments; heavy assembly factories, such as those for machinery and other heavy equipment; paper processing; chemical or petroleum processing, metalworks, glassworks, and other similar manufacturing plants; printing and publishing; generation, transmission, or distribution of electricity, natural gas, steam, or other utility or sanitary service; and construction and natural resource procurement.

**Metric Conversion Factors:** In this report, estimates are presented in customary U.S. units. Floorspace estimates may be converted to metric units by using the relationship, 1 square foot is approximately equal to .0929 square meters. Energy estimates may be converted to metric units by using the relationship, 1 Btu is approximately equal to 1,055 joules. (See **Btu.**)

**Multibuilding Facility:** A group of two or more buildings on the same site owned or operated by a single organization, business, or individual. Examples include university campuses and hospital complexes. (See **Building** and **Facility.**)

**Multiple Imputation:** The independent imputation of two more acceptable value for each missing item. The multiple imputation estimates can be combined to obtain variance estimates which include the effects of the imputation. (See **Imputation, Variance,** and Appendix C, "Estimation.")

**Natural Gas:** Hydrocarbon gas (mostly methane) supplied as an energy source to individual buildings by pipelines from a central utility company. Natural gas does not refer to liquefied petroleum gas or to privately owned gas wells operated by a building owner.

**Network Estimator:** A statistical technique which allows analysis of units other than those that were directly sampled. In this report, the facility-level estimates are based on the 1989 CBECS building-level sample. (See **Sampling** and Appendix C, "Estimation.")

**Out of Scope:** Violating one or more of the requirements for eligibility in the survey, therefore not included in the population covered by the 1989 CBECS. (See **In Scope.**)

**Output:** See **Central Physical Plant.**

**Output-Input Ratio:** The ratio of the amount (in Btu) of energy output by a central physical plant to the amount (in Btu) of input energy required. (See **Btu** and **Central Physical Plant.**)

**Owner Occupied:** Having the owner or the owner's business represented at the site. A building is considered owner occupied if an employee or representative of the owner (such as a building engineer or building manager) maintains office space in the building. Similarly, a chain store is considered owner occupied even though the actual owner may not be in the building but headquartered elsewhere. Other examples of the owner's business occupying a building include State-owned university buildings, elementary and secondary schools owned by a public school district, and a post office where the building is owned by the U.S. Postal Service.

**Pounds (District Heat):** A weight quantity of steam, also used in this report to denote a quantity of energy in the form of steam. The amount of usable energy obtained from a pound of steam depends on its temperature and pressure at the point of consumption and on the drop in pressure after consumption.

**Principal Building Activity:** The activity or function occupying the most floorspace in the building. The categories were designed to group buildings that have similar patterns of energy consumption. (See **Building** and **Floorspace**.)

The principal building activity categories used in this report are described below.

**Assembly:** signifies buildings used for the gathering of people for social, recreational, or religious activities whether in private or nonprivate meeting halls.

**Education:** refers to buildings that house academic or technical classroom instruction.

**Food Sales and Service:** involves retail or wholesale of food, as well as activities that involve preparation and sale of food and beverages for consumption.

**Health Care:** covers diagnostic and treatment facilities for both inpatient and outpatient care. Excluded from this group are skilled nursing or other residential care facilities (nursing homes). These buildings are classified as "Lodging" buildings.

**Lodging:** refers to buildings that offer multiple accommodations for short-term or long-term residents (including nursing homes).

**Mercantile and Service:** refers to buildings containing sales and displays of goods or services (excluding food).

**Office:** refers to buildings used for general office space, professional offices, and administrative offices.

**Other:** covers buildings that do not fit into any of the other named categories.

**Parking Garage:** refers to buildings used to park cars. Buildings in this category need not be totally enclosed by walls.

**Warehouse:** describes buildings used to store goods, manufactured products, merchandise, or raw materials. This category includes both refrigerated and nonrefrigerated warehouses.

**Vacant:** designates buildings in which more floorspace was vacant than was used for any single activity (as defined above) at the time of interview. A vacant building may have some occupied floorspace.

**Principal Facility Activity:** The primary business, commerce, or function carried on within each multibuilding facility. (See **Multibuilding Facility**.)

The principal facility activity categories used in this report were the following:

- College and University
- Other School (secondary, elementary, and other schools)
- Office
- Shopping Center and Mall
- Hospital
- Industrial (includes agricultural)
- Hotel and Motel
- Entertainment Complex

Warehouse  
Religious  
Other

For tables of facility characteristics, "Other" also includes shopping centers and malls, hotels and motels, entertainment complexes, warehouse, and religious facilities.

**Public Utilities Regulatory Policy Act (PURPA):** A 1978 Act which guarantees that electric utilities will purchase any excess electricity generated onsite by a facility, provided that the facility meets certain criteria. A facility meeting the PURPA criteria is designated as a qualifying facility. (See **Electricity Generation**.)

**PURPA:** See **Public Utilities Regulatory Policy Act (PURPA)**.

**Quadrillion Btu:** Equivalent to 1,000,000,000,000,000 ( $10^{15}$ ) Btu. (See **Btu**.)

**Qualifying Facility:** See **Public Utilities Regulatory Policy Act (PURPA)**.

**Relative Standard Error:** A measure of the reliability or precision of a survey statistic. The relative standard error is defined as the standard error of a survey estimate, expressed as a percent of the estimate. For example, a relative standard error of 10 percent means that the standard error is one-tenth as large as the survey estimate. (See **Standard Error** and Appendix C, "Estimation.")

**Residential:** As used in this survey, activities related to use as a dwelling for one or more households.

**RSE:** See **Relative Standard Error**.

**Sampling:** The procedure used to select cases (for the CBECS, buildings) for interview from the population (commercial buildings in the United States). (See **Network Estimator** and Appendix A, "The Facility Survey.")

**Sector:** A major component of the U.S. economy. The sector categories used in this report were defined based on the principal facility activity. (See **Principal Facility Activity**.)

**All Sectors:** includes commercial sector facilities, industrial sector facilities, and residential facilities.

**Commercial Sector:** encompasses colleges and universities, other schools, offices complexes, shopping centers and malls, hospitals, hotels and motels, entertainment complexes, warehouses, and religious facilities.

**Industrial Sector:** refers to industrial and agricultural facilities.

**Square Footage:** Floorspace, in units of square feet. One square foot is approximately equal to 0.0929 square meters. (See **Floorspace** and **Metric Conversion**.)

**Standard Error:** A measure of the precision of an estimate, equal to the square root of the variance. (See **Variance**, **Relative Standard Error**, and Appendix C, "Estimation.")

**Steam:** See **District Steam**.

**Trillion Btu:** Equivalent to 1,000,000,000,000 ( $10^{12}$ ) Btu. (See **Btu**.)

**Variance:** A measure of the variability of a set of observations that are subject to some chance variation, equal to the expected squared difference between a single observation and the average of all possible observations obtained in the same manner. The variance is the square of the standard error of estimates. For statistics presented in this report, the variance indicates the likely difference between the value computed from the CBECS sample and the

average of the values that could have been computed from all possible samples that might have been obtained by the same sample selection process. (See **Standard Error** and Appendix C, "Estimation.")

**Weight:** The number of units (buildings or facilities) in the United States that a particular sampled unit represents. To estimate the total value of an attribute (such as floorspace contained in multibuilding facilities) in the U.S. as a whole, each sampled unit's value is multiplied by the unit's weight. Summing the weighted sample values provides an estimate of the nationwide total. (See Appendix C, "Estimation.")