

Harnessing the power of renewables

Glossary of terms

Items with an asterisk () are terms defined by the U.S. Energy Information Administration (EIA).*

AVOIDED COST

The incremental cost for a utility to produce one more unit of power.

BACKFEED

When excess electric power is being produced from a distributed generation system into the local power grid, power flows in the opposite direction from its usual flow.

BACKUP GENERATOR

A generator that is used only for test purposes, or in the event of an emergency, such as a shortage of power needed to meet customer load requirements.*

BASELOAD GENERATION (BASELOAD PLANT)

Generation from a plant, usually housing high-efficiency steam-electric units, which is normally operated to take all or part of the minimum load of a system, and which consequently produces electricity at an essentially constant rate and runs continuously.*

CENTRAL STATION GENERATION

Production of energy at a large power plant that is transmitted through infra-

structure to a widely distributed group of users.

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.*

COGENERATION

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

COMMISSIONING TEST

A highly specialized activity where a power installation is tested to ensure it meets exacting standards through a set of engineering techniques and procedures to check, inspect and test every operational component of the project, from individual functions, such as instruments and equipment, up to complex amalgamations such as modules, subsystems and systems.

CONSUMPTION (ALSO ENERGY CONSUMPTION)

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

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.*

DISTRIBUTED GENERATOR

A generator that is located close to the particular load that it is intended to serve. General, but non-exclusive, characteristics of these generators include: an operating strategy that supports the served load and interconnection to a distribution or sub-transmission system (138 kV or less).*

DISTRIBUTION

The delivery of energy to retail customers.*

ELECTRICITY GENERATION

The process of producing electric energy or the amount of electric energy produced by transforming other forms of energy, commonly expressed in kilowatt hours (kWh) or megawatt hours (MWh).*

ELECTRIC POWER GRID

A system of synchronized power providers and consumers connected by transmission and distribution lines and operated by one or more control centers.*

ENERGY

Energy has several forms, some of

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which are easily convertible and can be changed to another form useful for work. Most of the world's convertible energy comes from fossil fuels that are burned to produce heat that is then used as a transfer medium to mechanical or other means in order to accomplish tasks. *

ENERGY DEMAND

The requirement for energy as an input to provide products and/or services.*

ENERGY EFFICIENCY

A ratio of service provided to energy input (e.g., lumens to watts in the case of light bulbs). Unlike conservation, which involves some reduction of service, energy efficiency provides energy reductions without sacrifice of service. May also refer to the use of technology to reduce the energy needed for a given purpose or service.*

ENERGY EFFICIENCY, ELECTRICITY

Refers to programs that are aimed at reducing the energy used by specific end-use devices and systems, typically without affecting the services provided. These programs reduce overall electricity consumption (reported in megawatt hours), often without explicit consideration for the timing of program-induced savings. Such savings are generally achieved by substituting technologically more advanced equipment to produce the same level of end-use services (e.g. lighting, heating,

motor drive) with less electricity. *

ENGINEERING STUDY

A study conducted by the electric cooperative that will indicate the equipment needed for the interconnection of a distributed generation system; typically, this study will address technical and safety requirements.

GRID

The layout of an electrical distribution system.*

IEEE

Institute of Electrical and Electronics Engineers

INTERCONNECTION

Two or more electric systems having a common transmission line that permits a flow of energy between them. The physical connection of the electric power transmission facilities allows for the sale or exchange of energy.*

INTERCONNECTION AGREEMENT

A legal contract for the connection of the distributed generation facility to the cooperative's lines, specifying the location, size, cost, manner of payment, terms of operation and respective responsibilities of the cooperative and the distributed generation member-owner.

INTERCONNECTION APPLICATION

A document submitted to the cooperative that provides information for a proposed distributed generation facility and allows

the cooperative to assess any potential impacts and ensure all requirements are met.

INTERCONNECTION COSTS (DG)

The reasonable costs of connection, switching, metering, transmission, distribution, safety provisions and administrative costs incurred by the cooperative directly related to the installation and maintenance of a member-owner's distributed generation facility.

INTERMITTENT LOAD

The range from base load to a point between base load and peak. This point may be the midpoint, a percent of the peak load, or the load over a specified time period.*

INTERMITTENT RESOURCE

An electric generating plant with output controlled by the natural variability of the energy resource rather than dispatched based on system requirements. *

ISOLATION DEVICE

A readily accessible, lockable, visible-break switch located between the distributed generation facility and its interface to the cooperative's electric facilities.

KILOWATT HOUR (KWH)

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

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LOAD

An end-use device or customer that receives power from the electric system.*

METHANE

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

OUTPUT

The amount of power or energy produced by a generating unit, station, or system.*

PEAK DEMAND, PEAK LOAD

The maximum load during a specified period of time.*

PHOTOVOLTAIC (PV)

Energy radiated by the sun as electromagnetic waves (electromagnetic radiation) that is converted at electric utilities into electricity by means of solar (photovoltaic) cells or concentrating (focusing) collectors.*

PURPA

Public Utility Regulatory Policies Act (PURPA) of 1978. One part of the Nation-

al Energy Act, PURPA contains measures designed to encourage the conservation of energy, more efficient use of resources, and equitable rates. Principal among these were suggested retail rate reforms and new incentives for production of electricity by cogenerators and users of renewable resources.*

QUALIFYING FACILITY (QF)

A cogeneration or small power production facility that meets certain ownership, operating, and efficiency criteria established by the Federal Energy Regulatory Commission (FERC) pursuant to the Public Utility Regulatory Policies Act (PURPA).*

RELIABILITY

A measure of the ability of the system to continue operation while some lines or generators are out of service. Reliability deals with the performance of the system under stress.

RENEWABLE ENERGY

Energy resources that are naturally replenishing but flow-limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Renewable energy resources include biomass, hydro, geothermal, solar, wind, ocean thermal, wave action and tidal action.*

SOLAR ENERGY

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

STORAGE CAPACITY

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

SYSTEM PROTECTION EQUIPMENT

Equipment that protects electrical power systems from faults through the isolation of faulted parts from the rest of the electrical network. The goal is to stabilize the power system by isolating only the components that are under fault, while leaving as much of the network as possible still in operation.

TRANSMISSION SYSTEM

An interconnected group of lines and associated equipment for the movement or transfer of electric energy between points of supply and points at which it is transformed for delivery to customers or is delivered to other electric systems.*

WIND ENERGY

Kinetic energy present in wind motion that can be converted to mechanical energy for driving pumps, mills and electric power generators.*

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