GLOSSARY

Of Hydroelectric Power Terms

Alternating Current An electric current changing regularly from one direction to the opposite.

Ampere The common unit of measurement of electrical current.

Baseload The minimum constant amount of load connected to the power system over a given time period, usually on a monthly, seasonal, or yearly basis.

Baseload Plant 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. These units are operated to maximize system mechanical and thermal efficiency and minimize system operating costs.

Bus (buswork) A conductor, or group of conductors, that serve as a common connection for two or more electrical circuits. In powerplants, buswork comprises the three rigid single-phase connectors that interconnect the generator and the step-up transformer(s).

Capability The maximum load that a generating unit, generating station, or other electrical apparatus can carry under specified conditions for a given period of time without exceeding approved limits of temperature and stress.

Capacity The amount of electric power delivered or required for which a generator, turbine, transformer, transmission circuit, station, or system is rated by the manufacturer.

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

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

Dam A massive wall or structure built across a valley or river for storing water.

Demand The rate at which electric energy is delivered to or by a system, part of a system, or a piece of equipment. It is expressed in kilowatts, kilovolt amperes, or other suitable units at a given instant or averaged over any designated period of time. The primary source of "demand" is the power-consuming equipment of the customers.

Direct Current Electric current going in one direction only.

Distribution System The portion of an electric system that is dedicated to delivering electric energy to an end user. The distribution system "steps down" power from high-voltage transmission lines to a level that can be used in homes and businesses.

Energy The capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy). Energy has several forms, some of 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. Electrical energy is usually measured in kilowatt hours and represents power (kilowatts) operating for some time period (hours), while heat energy is usually measured in British thermal units.

Generation (Electricity) The process of producing electric energy by transforming other forms of energy; also, the amount of electric energy produced, expressed in watthours (Wh).

Generator A machine that converts mechanical energy into electrical energy.

Head The difference in elevation between the headwater surface above and the tailwater surface below a hydroelectric powerplant under specified conditions.

Horsepower A unit of rate of doing work equal to 33,000 foot pounds per minute or 745.8 watts (Brit.), 746 watts (USA), or 736 watts (Europe).

Hydroelectric Power Electric current produced from water power.

Hydroelectric Powerplant A building in which turbines are operated, to drive generators, by the energy of natural or artificial waterfalls.

Kilowatt (kW) Unit of electric power equal to 1,000 watts or about 1.34 horsepower. For example, it's the amount of electric energy required to light ten 100-watt light bulbs.

Kilowatt-Hour (kWh) The unit of electrical energy commonly used in marketing electric power; the energy produced by 1 kilowatt acting for one hour. Ten 100-watt light bulbs burning for one hour would consume one kilowatt hour of electricity.

Kinetic Energy Energy which a moving body has because of its motion, dependent on its mass and the rate at which it is moving.

Load (Electric) The amount of electric power delivered or required at any specific point or points on a system. The requirement originates at the energy-consuming equipment of the consumers.

Megawatt A unit of power equal to one million watts. For example, it's the amount of electric energy required to light 10,000 100-watt bulbs.

Ohm The unit of measurement of electrical resistance. The resistance of a circuit in which a potential difference of one volt produces a current of one ampere.

Peakload The greatest amount of power given out or taken in by a machine or power distribution system in a given time.

Power Mechanical or electrical force or energy. The rate at which work is done by an electric current or mechanical force, generally measured in watts or horsepower.

Pumped-Storage A plant that usually generates electric energy during peak-load Hydroelectric Plant periods by using water previously pumped into an elevated storage reservoir during off-peak periods when excess generating capacity is available to do so. When additional generating capacity is needed, the water can be released from the reservoir through a conduit to turbine generators located in a power plant at a lower level.

Rated Capacity That capacity which a hydro generator can deliver without exceeding mechanical safety factors or a nominal temperature rise. In general this is also the nameplate rating except where turbine power under maximum head is insufficient to deliver the Name plate rating of the generator.

Reservoir An artificial lake into which water flows and is stored for future use.

Turbine A machine for generating rotary mechanical power from the energy of a stream of fluid (such as water, steam, or hot gas). Turbines convert the kinetic energy of fluids to mechanical energy through the principles of impulse and reaction, or a mixture of the two.

Volt (V) The unit of electromotive force or potential difference that will cause a current of one ampere to flow through a conductor with a resistance of one ohm.

Watt (W) The unit used to measure production/usage rate of all types of energy; the unit for power. The rate of energy transfer equivalent to one ampere flowing under a pressure of one volt at unity power factor.

Watthour (Wh) The unit of energy equal to the work done by one watt in one hour.