APPENDIX S

GLOSSARY

ADVERSE WATER CONDITIONS. See Water Conditions, Adverse.

AVERAGE WATER CONDITIONS. See Water Conditions, Average.

AVAILABILITY.

Average Availability. The ratio of the average capacity of a hydroelectric plant in the peak demand months to its rated capacity. This ratio accounts for variations in streamflow and head, and is also called Hydrologic Availability (see Section 6-7g).

Hydrologic Availability. See Average Availability.

Mechanical Availability. The ratio of the number of days in total period minus days out of service due to maintenance and forced outages, to the number of days in the total period. (see also Outages and Section 0-2d).

BACKWATER. Water level controlled by either a downstream reservoir, a channel restriction, or a stream confluence that affects the tailwater level of an upstream plant.

BASE LOAD. The minimum electrical system load over a given period of time (see also Figure 2-3).

BLOCK LOADING. A generating plant is said to be block loaded when its output is increased or decreased in definite steps without regard to following a particular load shape. A generating plant carries a block load when its output is maintained at a fixed level for an extended period of time (see also Figure 6-21).

BUSWORK. A conductor or group of conductors that serves as a common connection for two or more circuits. In powerplants, buswork comprises the three rigid single-phase connectors that interconnect the generator and the step-up transformer(s) (see also Section 2-5f).

CAPABILITY. The maximum load which a generator, turbine, transmission circuit, apparatus, station, or system can supply under specified conditions for a given time interval, without exceeding approved limits of temperature and stress.

Peaking Capability. See Capacity, Peaking Capacity.

CAPACITY. The load for which a generator, turbine, transformer, transmission circuit, apparatus, station or system is rated. Capacity is also used synonymously with capability (see also Sections 2-2b(3) and 6-1b). For definitions pertinent to the capacity of a reservoir to store water, see Reservoir Storage Capacity.

Assured System Capacity. The dependable capacity of system facilities available for serving system load after allowance for required reserve capacity, including the effect of emergency interchange agreements and firm power agreements with other systems.

Dependable Capacity. The load-carrying ability of a station or system under adverse conditions for the time interval and period specified when related to the characteristics of the load to be supplied. The dependable capacity of a system includes net firm power purchases (see also Sections 6-1b(6) and 6-7).

Equivalent Thermal Capacity. The amount of thermal generating capacity that would carry the same amount of system peak load as could be carried by a given hydroelectric plant (see also Section 6-7b).

Hydraulic Capacity. The maximum flow which a hydroelectric plant can utilize for energy (see also Section 6-1b(8)).

Installed Capacity. The sum of the capacities in a powerplant or power system, as shown by the nameplate ratings of similar kinds of apparatus, such as generating units, turbines, or other equipment (see also Section 6-1b(4)).

Overload Capacity. The maximum load that a generating unit or other device can carry for a specified period of time under specified conditions when operating beyond its normal rating but within the limits of the manufacturer's guarantee, or, in the case of expiration of the guarantee, within safe limits as determined by the owner (see also Section 6-1b(3)).

Peaking Capacity. The maximum peak load that can be supplied by a generating unit, powerplant, or power system in a stated time period. It may be the maximum instantaneous load or the maximum average load over a designated interval of time. Sometimes called peaking capability (see also Section 6-1b(5)).

Rated Capacity. The electrical load for which a generator, turbine, transformer, transmission circuit, electrical apparatus, powerplant, or power system is rated (see also Section 6-1b(2)).

Reserve Generating Capacity. Extra generating capacity available to meet unanticipated demands for power or to generate power in the event of loss of generation resulting from scheduled or unscheduled outages of regularly used generating capacity (see also Section 2-2e).

Sustained Peaking Capacity. Capacity that is supported by a sufficient amount of energy to permit it to be fully usable in meeting system loads (see also Section 6-7i).

CAPACITY VALUE. That portion of the at-site or at-market value of electric power which is assigned to capacity (see also Section 9-5b).

CAVITATION. The formation of voids within a body of moving liquid (or around a body moving in a liquid) when the local pressure is lower than the vapor pressure, and the particles of liquid fail to adhere to the boundaries of the passageway. These voids fill with vapor and then collapse violently, causing pitting of metal on turbine blades (see Chapter 7 of reference (81)).

CHARGE/DISCHARGE RATIO. The ratio of the average pumping load on a pump-turbine unit to its rated generating output (see also Section 7-2k).

CIRCUIT BREAKER. Any switching device that is capable of closing or interrupting an electrical circuit (see also Section 2-5f).

COMBINED CYCLE. See Plant, Combined Cycle.

COMBUSTION TURBINE. See Plant, Combustion Turbine.

CONSERVATION STORAGE. See Reservoir Storage Capacity, Conservation.

CRITICAL DRAWDOWN PERIOD. That portion of the critical period in which the reservoir storage is drafted, i.e., the sequence of historical streamflows in which the available reservoir storage capacity is fully drafted while meeting firm energy requirements (see also Section 5-10d and Figure 5-32).

CRITICAL PERIOD. The multiple-month period when the limitation of hydroelectric power supply due to the shortage of available water is most critical with respect to system load requirements, as determined from an analysis of the historical streamflow record. The reservoir begins the critical period full; the available storage is fully drafted at one point during the period; and the critical period ends when the storage has completely refilled (see also Section 5-10d and Figure 5-32).

CRITICAL WATER CONDITIONS. See Water Conditions, Adverse.

CYCLE EFFICIENCY. The ratio of the generating output of a pumped-storage plant to its pumping energy input. Includes motor, pump, turbine, and generator efficiency losses and penstock head losses (see also Section 7-2j).

CYCLING. Powerplant operation to meet the intermediate portion of the load (9 to 14 hours per day) (see also Section 2-2c(5)).

DEMAND. The rate at which electric energy is delivered to or by a system, part of a system, or piece of equipment, usually expressed in kilowatts or megawatts, for a particular instant or averaged over a designated period of time (see also Section 2-2b(4)).

DISCHARGE. The rate of water flow through, over, or around water control facilities. The rate of flow is measured by stream gage or calculated from predetermined rating tables. The term may be applied to the rate of flow from each individual source (such as a particular turbine) or to the algebraic summation from all individual sources (which would be the total rate of flow). Total discharge is synonymous with outflow.

Rated Discharge. Turbine discharge at rated head, with wicket gates in fully open position (see also Section 5-5c(4)).

DRAFT. The withdrawal of water from a reservoir.

DRAFT TUBE. A water conduit which carries water from a reaction turbine runner or crossflow turbine runner to the tailrace. Designed to maximize head utilization by the turbine (see also Section 2-4h).

DRAWDOWN. The distance that the water surface elevation of a storage reservoir is lowered from a given or starting elevation as a result of the withdrawal of water to meet some project purpose (i.e., power generation, creating flood control space, irrigation demand, etc.).

DURATION CURVE. A curve of quantities plotted in descending sequential order of magnitude against time intervals for a specified period. The coordinates may be absolute quantities or percentages (see also Sections 2-2f(2), 4-4d and 5-7).

ELECTRIC POWER SYSTEM. Physically connected electric generating, transmission, and distribution facilities operated as a unit under one control.

ENCROACHMENT. The reduction in generating head at a hydroelectric project caused by a rise in tailwater elevation resulting from the backwater effects of a downstream reservoir.

ENERGY. That which does or is capable of doing work. It is measured in terms of the work it is capable of doing; electric energy is usually measured in kilowatt-hours (see also Section 2-2b).

Average Annual Energy. The average amount of energy generated by a hydroelectric project or system over the period of record (see also Section 5-2b).

Dump Energy. Energy generated in hydroelectric plants by water that cannot be stored or conserved and which energy is in excess of the needs of the electric system producing the energy.

Firm Energy. Electric energy which is intended to have assured availability to the customer to meet any or all agreed upon portion of his load requirements (see also Section 5-2c).

Fuel Displacement Energy. Electric energy generated at a hydroelectric plant as a substitute for energy which would otherwise have been generated by a thermal-electric plant (see also Section 9-6a).

Nonfirm Energy. Electric energy having limited or no assured availability.

Off-peak Energy. Electric energy supplied during periods of relatively low system demands.

On-peak Energy. Electric energy supplied during periods of relatively high system demands.

Primary Energy. Hydroelectric energy which is available from continuous power. Primary energy is firm hydroelectric energy (see also Section 5-2c).

Pumping Energy. The energy required to pump water from the lower reservoir to the upper reservoir of a pumped-storage project (see also Section 7-1b).

Secondary Energy. All hydroelectric energy other than primary energy. Secondary energy is generally marketed as non-firm energy (see also Section 5-2d).

EXPORTS. Electric power which is transferred from a given power system to another (usually adjacent) power system. Export power must be included in the given power system's loads (see also Section 3-3b(2)).

FACTOR.

Availability Factor. The ratio of the time a machine or equipment is ready for or in service to the total time interval under consideration (see also Section 0-2d).

Capacity Factor. The ratio of the average load on a machine or equipment for the period of time considered, to the capacity rating of the machine or equipment (see also Section 6-1b(10)).

Hydrologic Availability. See definition of Availability, Average, and Section 6-7g.

Load Factor. The ratio of the average load over a designated period to the peak-load occurring in that period (see also Section 2-2b(6)).

Plant Factor. The ratio of the average load on the plant for the period of time considered to the aggregate rating of all the generating equipment installed in the plant (see Section 6-1b(9)).

Power Factor. The ratio of kilowatts to kilovolt-amperes, which is indicative of a generator's ability to deliver reactive power in addition to real power (kilowatts), (see also Section 6-3b(12)).

FLASHBOARDS. Temporary structures installed at the top of dams, gates, or spillways for the purpose of temporarily raising the pool elevation, and hence the gross head of a hydroelectric generating plant, thus increasing power output. Normally, flashboards are removed either at the end of the water storage season, or during periods of high streamflow.

FLEXIBILITY. The characteristics of a generating station or group of stations, which permits shaping the energy produced to fit a desired load shape or operating plan (see also Section 6-71).

FOREBAY. The impoundment immediately above a dam or hydroelectric plant intake structure. The term is applicable to all types of hydroelectric developments (i.e., storage, run-of-river and pumped-storage).

FULL-GATE DISCHARGE. The discharge through a turbine when the turbine wicket gates are wide open.

GENERATION. The act or process of producing electric energy from other forms of energy; also, the amount of electric energy so produced.

GENERATING UNIT. A single power-producing unit, comprised of a turbine, generator, and related equipment.

GENERATOR. The electrical equipment in power systems that converts mechanical energy to electrical energy (Section 2-5d and Figure 2-29).

GIGAWATT. One million kilowatts.

GOVERNOR. The device which measures and regulates turbine speed by controlling wicket gate angle to adjust water flow to the turbine (Section 2-5e and Figures 2-30 and 2-31).

HEAD.

Critical Head. The hydraulic head at which the full-gate output of the turbine equals the generator rated capacity (full-gate referring to the condition where the turbine wicket gates are wide-open, thus permitting maximum flow through the turbine). Below critical head, the full-gate turbine capability will be less than the generator rated capacity. Above critical head, generator rated capacity can be obtained at a discharge less than full-gate discharge. At many older plants, generators have a continuous overload rating. At these plants, critical head is defined as the head at which full-gate output of the turbine equals the generator overload capacity. In recent Corps of Engineers practice, the term critical head is used to refer only to operating projects. For planning and design purposes, the term rated head is used to describe the same head condition (see also Section 5-5c(10)).

Design Head. The head at which the turbine will operate to give the best overall efficiency under various operating conditions (see also Section 5-5c(1)).

Gross Head. The difference of elevations between water surfaces of the forebay and tailrace under specified conditions (see also Section 5-3c).

Net Head. The gross head less all hydraulic losses except those chargeable to the turbine (see also Section 5-3c).

Rated Head. Technically, the head at which a turbine at rated speed will deliver rated capacity at specified gate and efficiency. However, for planning and design purposes, rated head is identical to critical head (see also Section 5-5c(4)).

HEADWATER BENEFITS. The benefits brought about by the storage and release of water by a reservoir project upstream. Application of the term is usually in reference to benefits realized at a downstream hydroelectric power plant.

HEADWATER PROJECT. A storage reservoir located in the upper reaches of a river basin.

HEAT RATE. A measure of generating station thermal efficiency, generally expressed as BTUs per net kilowatt-hour. It is computed by dividing the total BTU content of the fuel burned (or of heat released from a nuclear reactor) by the resulting net kilowatt-hours generated.

HYDRAULIC CAPACITY. See Capacity, Hydraulic.

HYDROGRAPH. A graphical representation of the variations of the flow of a stream at a given station plotted in chronological order, usually with time as the abscissa and flow as the ordinate.

HYDROLOGIC AVAILABILITY. See definition of Availability, Hydrologic, and Section 6-7g.

IMPORTS. Electric power which is transferred into a power system from another (usually adjacent) power system. Import power is usually considered to be a generating resource (see also Section 2-2d(9)).

IMPULSE TURBINE. A turbine which utilizes the kinetic energy of a high velocity water jet to produce power.

INFLOW. The rate of water flow into a reservoir or forebay during a specified period.

INTERCONNECTION (INTERTIE). An electrical connection between two utility systems permitting the flow of power in either direction at different times between the two systems.

KILOWATT (kW). The electric unit of power, which equals 1,000 watts or 1.341 horsepower.

KILOWATT-HOUR (kWh). The basic unit of electric energy. It equals one kilowatt of power applied for one hour of time.

LOAD. The amount of electric power delivered at a given point.

Base Load. The minimum load in a stated period of time (see also Figure 2-3).

Intermediate Load. That portion of the load between the base load and the peaking portion of the load (see also Figure 2-3).

Interruptible Load. Electric power load which may be curtailed at the supplier's discretion, or in accordance with a contractual agreement (Section 2-2d(10)).

Peak Load. The maximum load in a stated period of time. The peaking portion of the load is that portion of the load that occurs for less than eight hours per day (see also Figure 2-3).

LOAD CENTER. A point at which the load of a given area is assumed to be concentrated.

LOAD CURVE. A curve of demand versus time showing in chronological sequence the magnitude of the load for each unit of time of the period covered (see also Figures 2-2 and 6-1).

LOAD FACTOR. See Factor, Load.

LOAD-RESOURCE ANALYSIS. A year-by-year comparison of expected power loads with existing and scheduled generating resources, which is undertaken to determine when additional generating resources will be required (see also Sections 3-3 and 3-10d).

LOSS.

Consumptive Loss. Water that is removed from a reservoir and not returned to downstream flow. Examples are evaporation and withdrawals for irrigation and water supply (see also Section 4-5h).

Electric System Loss. Total electric energy loss in the electric system. It consists of transmission, transformation, and distribution losses, and unaccounted-for energy losses between sources of supply and points of delivery.

Energy Loss. The difference between energy input and output as a result of transfer of energy between two points (see also Line Loss).

Head Loss. Reduction in generating head due to friction in the water passage to the turbine: includes trashrack, intake, and penstock friction losses (see also Section 5-61).

Line Loss. Energy loss and power loss on a transmission or distribution line (see also Section 9-5g)

Nonconsumptive Loss. Water that is unavailable for a specific project purpose but which is included in downstream flow from a project. Examples are losses due to seepage, turbine leakage, and the operation of navigation and fish passage facilities (see also Section 4-5h).

Power Loss. The difference between power input and output as a result of transfer of energy between two points (sometimes referred to as "Capacity Loss") (see also Line Loss).

Transmission Loss. See Line Loss.

MARKETABILITY. The generating output of a proposed powerplant is marketable if it can be used in the system load and the fixed and variable costs of the plant can be recovered with interest within an appropriate period of time (see also Sections 3-12 and 9-9).

MASS CURVE. A cumulative plot of reservoir inflow versus time (see also Appendix F).

MEGAWATT. 1,000 kilowatts.

MINIMUM DISCHARGE.

Project Minimum Discharge. The minimum flow that must be released from a project to meet environmental or other non-power water requirements.

Turbine Minimum Discharge. The minimum permissible discharge through a turbine (see also Section 5-5d).

MULTIPLE-PURPOSE RESERVOIR. A reservoir planned to be used for more than one purpose.

OUTAGE. The period during which a generating unit, transmission line, or other facility is out of service (see also Section 0-2d).

Forced Outage. The shutting down of a generating unit, transmission line, or other facility for emergency reasons.

Maintenance Outage. The removal of a generating unit for required maintenance at any time between scheduled outages.

Scheduled (Planned) Outage. The shutdown of a generating unit, transmission line, or other facility for inspection or maintenance in accordance with an advance schedule.

PEAK DEMAND MONTHS. The month or months of highest power demand (see also Section 6-7g(6)).

PENSTOCK. A conduit used to convey water under pressure to the turbines of a hydroelectric plant (see also Section 2-4e).

PERIOD OF RECORD. The historical period for which streamflow records exist (see also Section 5-6c).

PLANT (STATION).

Base Load Plant. A power plant which is normally operated to carry base load and which, consequently, operates essentially at a constant load (see also Section 6-3b(3)).

Conventional Hydroelectric Plant. A hydroelectric power plant utilizing falling water only once as it passes downstream, as opposed to either a pump-back or pumped-storage plant, which recirculates all or a portion of the streamflow during the production of electric power (see also Section 2-2d(6)).

Combined Cycle Plant. An electric power plant consisting of a series of combustion turbines with heat extractors on their exhausts (see also Section 2-2d(5)).

Combustion Turbine Plant. An electric power plant consisting of natural gas or distillate oil-fired jet engines connected to a generator (see also Section 2-2d(4)).

Energy Displacement Plant. A power plant (usually hydro electric), whose output is used to displace generation from existing high-cost thermal plants (see also Section 3-11).

Fossil-Fuel Plant. An electric power plant utilizing fossil fuels (coal, lignite, oil, or natural gas) as its source of energy (see also Section 2-2d(2)).

Nuclear Power Plant. An electric generating station utilizing the energy from a nuclear reactor as the source of power (see also Section 2-2d(3)).

Peak Load (or Peaking) Plant. A power plant which is normally operated to provide power during maximum load periods (see also Section 6-3b(6)).

Pondage Plant. A hydroelectric plant with sufficient storage to permit daily or weekly shaping of streamflows (see also Section 2-3c).

Power Plant (Powerplant). A generating station where prime movers (such as turbines), electric generators, and auxiliary equipment for producing electric energy are located.

Pump-Back Hydroelectric Plant. An on-stream pumped-storage project. This type of plant utilizes a combination of natural streamflow and pumped water as its source of energy (see also Section 2-3e(3)).

Pumped-Storage Hydroelectric Plant. A hydroelectric power plant that generates electric energy for peak load use by utilizing water pumped into a storage reservoir, usually during off-peak periods. The two major types of pumped-storage hydroelectric plants are pump-back and off-stream pumped-storage plants (see also Sections 2-3e and 7-1b).

Run-of-River Plant. A hydroelectric power plant utilizing pondage or the flow of the stream as it occurs (see also Section 2-3b).

Steam-Electric Plant. An electric power plant utilizing steam for the motive force of its prime movers. Steam plants can be either nuclear or fossil fuel-fired, or they can utilize geothermal energy.

Storage Plant. A hydroelectric plant associated with a reservoir having power storage (see see also Section 2-3d).

Thermal Plant. An electric power plant which derives its energy from a heat source, such as combustion, geothermal water or steam, or nuclear fission. Includes fossil-fuel and nuclear steam plants and combustion turbine and combined cycle plants.

PONDAGE. Reservoir storage capacity of limited magnitude, that provides only daily or weekly regulation of streamflow (see also Sections 2-3c and 6-8b).

POWER. The time rate of transferring energy. Electrical power is measured in kilowatts. The term is also used in the electric power industry to mean inclusively both capacity (power) and energy.

Continuous Power. Hydroelectric power available from a plant on a continuous basis under the most adverse hydraulic conditions contemplated. Same as prime power.

Firm Power. Power intended to have assured availability to the customer to meet all or any agreed upon portion of his load requirements.

Interruptible Power. Power made available under agreements which permit curtailment or cessation of delivery by the supplier (see also Section 2-2d(10)).

Nonfirm Power. Power which does not have assured availability to the customer to meet his load requirements.

Prime Power. Same as continuous power.

Seasonal Power. Power generated or made available to customers only during certain seasons of the year.

POWER BENEFITS. The monetary benefits associated with the output of a hydroelectric plant (see also Section 9-2).

POWER POOL.

Reservoir Power Pool. That portion of a reservoir's storage capacity which is allocated to the storage of water for power production.

Electric Power Pool. Two or more interconnected electric power systems that are coordinated to supply power in the most economical manner for their combined loads.

POWER VALUES. Annualized unit costs of constructing and operating the thermal alternative to a hydroelectric plant (see also Sections 9-3b and 9-5a).

At-Market (or At-load Center) Value. The value of power at the market as measured by the cost of producing and delivering equivalent alternative power to the market (see also Section 9-5g).

At-Site Value. The value of power at the site of the hydroelectric plant as measured by the at-market value minus the cost of transmission facilities and losses from the hydroelectric plant to the load center. The amount of power at the site is more than the amount of power at the market due to transmission losses (see also Section 9-5g).

Capacity Value. That part of the at-site or at-market power value which is assigned to capacity (see also Section 9-5b).

Energy Value. That part of the at-site or at-market power value which is assigned to energy (see also Section 9-5d).

Fuel Displacement Value. The value of electric energy, usually hydro, which may be substituted for energy generated in a fuel-electric plant, in terms of the incremental cost of producing the energy in the fuel-electric plant (see also Section 9-6)

PUMP-TURBINE (REVERSIBLE TURBINE). A hydraulic turbine, normally installed in a pumped-storage plant, which can be used alternately as a pump and prime mover (turbine) (see also Sections 7-2f and g).

RAMP RATE. The maximum allowable rate of change in output from a powerplant. The ramp rate is established to prevent undesirable effects due to rapid changes in loading or (in the case of hydroelectric plants) discharge.

REACTION TURBINE. A turbine which utilizes both kinetic energy and the pressure of the water column for producing power. Francis, Kaplan, and fixed-blade turbines are all reaction turbines (see also Section 2-6c).

REREGULATING RESERVOIR (REREGULATOR). A reservoir located downstream from a hydroelectric peaking plant. A reregulator has sufficient pondage capacity to store the widely fluctuating discharges from the peaking plant and to release them in a relatively uniform manner downstream (Sections 2-3f and 6-8c).

RESERVE. The additional capacity of a power system that is used to cover contingencies, including maintenance, forced outages, and abnormal loads (Sections 2-2e and 6-3b(7)).

Cold Reserve. Thermal generating capacity available for service but not maintained at operating temperature.

Hot Reserve. Thermal generating capacity maintained at a temperature and condition which will permit it to be placed into service promptly.

Spinning Reserve. Generating capacity connected to the bus and ready to take load. It also includes capacity available in generating units which are operating at less than their capability (see also Section 2-2e).

Standby Reserve. Reserve capacity which can be placed on-line in a matter of minutes. Includes hot reserve capacity, combustion turbines, and most idle hydroelectric capacity (see also Section 2-2c).

System Required Reserve. The system reserve capacity needed as standby to insure an adequate standard of service.

RESERVOIR STORAGE.

Active Storage. The portion of the live storage capacity in which water normally will be stored or withdrawn for beneficial uses, in compliance with operating agreements or restrictions.

Conservation Storage. That portion of the water stored in a reservoir that is impounded for later use. Synonymous with active storage. Conservation storage is the portion of a reservoir's live storage that is normally conserved for beneficial use at-site or downstream but does not include any live storage space reserved exclusively for flood control (see also Section 5-12c).

Dead Storage. The volume of a reservoir which is below the invert of the lowest outlet and cannot be evacuated by gravity.

Flood Control Storage Space. Reservoir storage space that is kept available for impounding potential flood flows. Exclusive flood control storage space is evacuated as soon as streamflows recede to the point when storage releases can be made without exceeding channel bankfull capacity. Seasonal flood control storage space is discussed under joint use storage (see also Sections 5-12d and e).

Inactive Storage. The portion of the live storage capacity from which water normally will not be withdrawn, in compliance with operating agreements or restrictions.

Joint Use Storage. Storage space that is used for flood control for part of the year and to impound conservation storage during the remainder of the year (see also Section 5-12e).

Live Storage. The volume of a reservoir exclusive of dead and surcharge storage capacity.

Pondage. Reservoir storage capacity of limited magnitude, that provides only daily or weekly regulation of streamflow (see also Sections 2-3c and 6-8b).

Power Storage. Conservation storage that is regulated for hydroelectric power generation (see also Section 5-10a).

Seasonal Storage. Reservoir storage capacity of sufficent magnitude to permit carryover from the high flow season to the low flow season, and thus to develop a firm flow substantially greater than the minimum natural flow (see also Sections 2-3d and 5-10 through 5-14).

Storage Capacity. The volume of a reservoir available to store water.

REVERSIBLE UNIT. See Pump-Turbine.

RULE CURVE. A curve or family of curves indicating how a reservoir is to be operated under specific conditions to obtain best or predetermined results. Rule curves can be designated to regulate storage for flood control, hydropower production, and other operating objectives, as well as combinations of objectives (see also Sections 5-11, 12, and 13).

RUNNER. The rotating part of a turbine.

SEQUENTIAL STREAMFLOW ROUTING (SSR). The chronological routing of streamflows through a project or system of projects in order to define a project's firm yield, its energy or peaking power output, or its performance under specified operating criteria (see also Sections 5-4c and 5-10 through 5-14).

SERVICE AREA. Territory in which a utility system is required or has the right to supply or make available electric service to ultimate consumers.

SPILL. The discharge of water through gates, spillways, or conduits which bypasses the turbines of a hydroelectric plant.

SPIRAL CASE. A steel-lined conduit connected to the penstock or intake conduit that evenly distributes water flow to the turbine runner (Section 2-5b).

STATION USE. Energy power used in a generating plant as necessary in the production of electricity. It includes energy consumed for plant light, power, and auxiliaries regardless of whether such energy is produced at the plant or comes from another source.

STEAM PLANT. See Plant, Steam-Electric.

STORAGE CAPACITY. See Reservoir Storage.

STORAGE DRAFT. Stored water released from a reservoir during a specified interval of time, thereby lowering the elevation of the water surface in the reservoir.

STORAGE PROJECT. A project with a reservoir of sufficient size to permit carryover from the high-flow season to the low-flow season, and thus to develop a firm flow substantially more than the minimum natural flow. A storage project may have its own powerplant or may be

used only for increasing generation at some downstream plant (see also Sections 2-3d and 5-10 through 5-14).

STREAMFLOW. The rate at which water passes a given point in a stream, usually expressed in cubic feet per second.

Average Streamflow. The average rate of flow at a given point during a specified period.

Depleted Streamflow. Streamflow which has been adjusted to remove existing or projected withdrawals or diversions for irrigation or municipal and industrial water supply (see also Sections 4-3b and e).

Maximum Streamflow. The maximum rate of flow at a given point during a specified period.

Median Streamflow. The rate of flow at a given point for which there are equal numbers of greater and lesser flow occurrences during a specified period.

Minimum Streamflow. The minimum rate of flow at a given point during a specified period.

Natural Streamflow. Streamflow at a given point of an uncontrolled stream, or regulated streamflow which has been adjusted to eliminate the effects of reservoir storage or upstream diversions (see also Section 4-3b(1)).

Regulated Streamflow. The controlled rate of flow at a given point during a specified period resulting from reservoir operation.

SWITCHYARD. An assemblage of electrical equipment for the purpose of tying together two or more electric circuits through switches, selectively arranged in order to permit a circuit to be disconnected or to change the electric connection between the circuits. In a hydroelectric project, the switchyard is the point at which the energy generated at the project is connected to the distribution system (see also Section 2-5h).

TAILRACE. The channel or canal that carries water away from a dam. Also sometimes called afterbay (see also Section 2-4h).

TAILWATER ELEVATION. The elevation of the water surface downstream from a dam or hydroelectric plant (see also Section 4-5b).

THERMAL PLANT. See Plant, Thermal.

TAILWATER ELEVATION. The elevation of the water surface downstream from a dam or hydroelectric plant (see also Section 4-5b).

THERMAL PLANT. See Plant, Thermal.

TRANSFORMER. An electromagnetic device used to change the voltage of alternating current electricity (see also Section 2-5g).

TRANSMISSION. The transporting or conveying of electric energy in bulk to a convenient point at which it is subdivided for delivery to the distribution system. Also used as a generic term to indicate the conveying of electric energy over any or all of the paths from source to point of use.

WATER CONDITIONS.

Adverse Water Conditions. Water conditions limiting the production of hydroelectric power, either because of low water supply or reduced gross head or both. Also sometimes called critical water conditions (see also Section 5-10d).

Average Water Conditions. Precipitation and runoff conditions which provide water for hydroelectric power development approximating the average amount and distribution available over a long time period, usually the period of record.

Critical Water Conditions. See Adverse Water Conditions.

Median Water Conditions. Precipitation and runoff conditions which provide water for hydroelectric development approximating the median amount and distribution available over a long time period, usually the period of record.

WATER HAMMER. Potentially damaging pressure changes in a closed pressure conduit or penstock that are caused by changes in rate of water flow (see also Section 2-4f(2)).

WATT. The basic electrical unit of power or rate of doing work. The rate of energy transfer equivalent to one ampere flowing under a pressure of one volt at unity power factor. One horsepower is equivalent to approximately 746 watts.

WHEELING. The transfer of power and energy from one utility over the transmission system of a second utility for delivery to a third utility, or to a load of the first utility.

WICKET GATES. Adjustable vanes that surround a reaction turbine runner and control the area available for water to enter the turbine (see also Section 2-5b).