

Appendixes

List of Acronyms and Terms

Acronyms

AC:	alternating current
ACE:	area control error
AGC:	automatic generation control
ANSI:	American National Standards Institute
CWIP:	Construction Work in Progress
DC:	direct current
DOE:	Department of Energy
DSG:	dispersed source of generation
ECAR:	East Central Area Reliability Coordination Agreement
ECC:	energy control center
EHV:	extra high voltage
ELF:	extremely low frequency
EMS:	energy management system
ERCOT:	Electric Reliability Council of Texas
FERC:	Federal Energy Regulatory Commission
FPA:	Federal Power Act
HVDC:	High voltage direct current
IPP:	Independent power producer
kV:	1,000 volts (kilovolt)
kW:	1,000 watts (kilowatt)
kWh:	kilowatthour
LOLP:	loss of load probability
MAAC:	Mid-Atlantic Area Council
MAIN:	Mid-American Interconnected Network
MAPP:	Mid-Continent Area Power Pool
MW:	1 million watts (megawatt)
NARUC:	National Association of Regulatory Utility Commissioners
NEPA:	National Environmental Policy Act of 1969
NEPOOL:	New England Power Pool
NERC:	North American Electric Reliability Council
NOPR:	notice of proposed rulemaking
NRC:	Nuclear Regulatory Commission
PJM:	Pennsylvania/New Jersey/Maryland Interconnection
NPCC:	Northeast Power Coordinating Council
NUG:	nonutility generation
PSD:	prevention of significant deterioration
Puc:	public utility commission
PUHCA:	Public Utility Holding Company Act of 1935
PURPA:	Public Utility Regulatory Policies Act of 1978
QF:	qualifying facility
SCADA:	supervisory control and data acquisition
SERC:	Southeastern Electric Reliability Council
SPP:	Southwest Power Pool
VAR:	volt-amps-reactive

V/m: volts per meter

WSCC: Western Systems Coordinating Council

Terms

Alternating Current (AC): Electric current that reverses direction many times per second (120 times per second in the United States); almost the entire U.S. power system uses AC except for some long-distance direct current (DC) transmission lines.

Automatic Generation Control (AGC): A system used to control the output of electric generators in a control area to balance the supply and demand of power and execute power transactions with neighboring control areas.

Bulk Power System: Includes generating units, transmission lines, and related equipment.

Capacity Margin: The difference between generation capacity and peak load expressed as a percentage of capacity.

Circuit: A conductor or system of conductors that forms a closed loop through which current flows.

Cogeneration: Production of both electrical (or mechanical) energy and thermal energy from the same primary energy source.

Conductors: Bundled strands of wire that carry electric current.

Control Area: A region with an energy control center responsible for operating the power system within that area.

Coordinating Transactions: Involves the scheduling and control of generation to implement power transfers, as well as monitoring and recording the transactions for billing or for other compensation.

Direct Current (DC): Electric current that flows continuously in one direction.

Distribution lines: Power lines delivering electricity to customers at relatively low voltages typically between 110 and 69,000 volts.

Economic Dispatch: A system for selecting generating units to operate to balance supply and demand at minimum cost.

Economy Transfers: Power purchased by one system from another because it is less expensive than power produced by the first system's own generating facilities.

Electric Field: The electric force that a charged object is capable of exerting on other charges in its vicinity.

Hertz (Hz): Frequency measured in cycles per second; power systems in the United States operate at "60 Hz.

Load Management: The manipulation of customer demand by economic and/or technical means.

Loop Flows: Parallel path flows crossing utilities' boundaries along paths not contracted for or scheduled.

Loss of Load Probability (LOLP): A measure of the long-term expectation that a utility will be unable to meet customer demand.

Magnetic Field: The magnetic force that a charged object is capable of exerting on other charges in its vicinity.

Qualifying Facility (QF): Generating unit qualifying for special regulatory treatment under the Public Utility Regulatory Policies Act of 1978.

Radial or Feeder lines: Transmission lines connected to the grid at only one end; the other end is connected either to a power plant or distribution system.

Ramp Rate: The rate at which a generator's power output can change.

Reactance: A phenomenon of AC power in which the voltage and current are out of phase, that is, they do not peak simultaneously.

Reactive Power: Power which is stored by reactive elements in a power system; called VARs (Volt-Ammps-Reactive).

Real Power: The rate at which energy is delivered to a load to be transformed into heat, light, or physical motion.

Reliability: The ongoing ability of a power system to avoid outages and continue to supply electricity with the appropriate frequency and voltage to customers.

Reserve Margin: The difference between generating capacity and peak load, expressed as a percentage of peak load.

Retail Wheeling: Wheeling for delivery of power to a retail customer.

Security: The ability of the bulk power system to withstand sudden disturbances, such as the failure of a generator or transmission line.

Speed Governor: A device on a generating unit which adjusts the unit's power output to maintain the exact frequency.

Stability: The ability to maintain synchronous operation following disturbance.

Substations: A collection of power system equipment, such as voltage transformers, circuit breakers, and switches.

Supervisory Control and Data Acquisition: Telemetry and control equipment which monitors voltages and power flows and coordinates the transmission line and voltage control equipment.

Telemetry: Monitoring and communication equipment.

Transmission Access: The ability to use a transmission system.

Transmission System: An interconnected group of individual lines, which transport electricity over long distances.

Volt: A unit of electromotive force or the electrical pressure that can push a current through a circuit; can be positive or negative.

Voltage: A measure of the difference in volts between any two conductors or between a conductor and the ground, which is considered to be zero.

Watt: The unit of measure of electrical power or the rate of doing work.

Wheeling: The use of the transmission facilities of one system to transmit power produced by other entities.

Wholesale Wheeling: Wheeling for delivery to a utility system.