

Glossary

115-kV: 115 kilovolts or 115,000 volts

345-kV: 345 kilovolts or 345,000 volts

AC (alternating current): An electric current which reverses its direction of flow periodically. (In the United States this occurs 60 times a second-60 cycles or 60 Hertz.) This is the type of current supplied to homes and business.

ACSR: Aluminum Conductor, Steel Reinforced, a common type of overhead conductor.

AIS: Air-insulated Substation

Ampere: (Amp): A unit measure for the flow (current) of electricity. A typical home service capability (i.e., size) is 100 amps; 200 amps is required for homes with electric heat.

Arrester: Protects lines, transformers and equipment from lightning and other voltage surges by carrying the charge to ground. Arresters serve the same purpose as a safety valve on a steam boiler.

Auxiliary Transformers: Equipment installed at substations to provide voltage or current information for relaying and/or metering purposes.

BLSF: Bordering Land Subject to Flooding.

Bundle (circuit): Two or more parallel 3-conductor circuits joined together to operate as one single circuit.

Bundle (conductor): Two or more phase conductors or cables joined together to operate as a single phase of a circuit.

Cable: A fully insulated conductor usually installed underground but in some circumstances can be installed overhead.

CELT: ISO-NE, Forecast Report of Capacity, Energy, Loads and Transmission

Certificate: Certificate of Environmental Compatibility and Public Need

Circuit: A system of conductors (three conductors or three bundles of conductors) through which an electrical current is intended to flow and which may be supported above ground by

transmission structures or placed underground.

Circuit Breaker: A switch that automatically disconnects power to the circuit in the event of a fault condition. Located in substations. Performs the same function as a circuit breaker in a home.

C&LM: Conservation and Load Management.

Conductor: A metallic wire, busbar, rod, tube or cable which serves as a path for electric current flow.

Conduit: Pipes, usually PVC plastic, typically encased in concrete, for housing underground power cables.

CEAB: Connecticut Energy Advisory Board

Contingency: The unexpected failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch or other electrical element

Conversion: Change made to an existing transmission line for use at a higher voltage, sometimes requiring the installation of more insulators. (Lines are sometimes pre-built for future operation at the higher voltage.)

CONVEX: Connecticut Valley Electric Exchange.

Corona: A luminous discharge due to ionization of the air surrounding conductors, hardware, accessories, or insulators caused by a voltage gradient exceeding a certain critical value. Surface irregularities such as stranding, nicks, scratches, and semiconducting or insulating protrusions are usual corona sites, and weather has a pronounced influence on the occurrence and characteristics of overhead power-line corona.

Council: Connecticut Siting Council

CT DEP: Connecticut Department of Environmental Protection

dBa: Decibel, on the A-weighted scale.

DC: (direct current): Electricity that flows continuously in one direction. A battery produces DC power.

- DBH:** Diameter breast height
- Deadend Structure:** is a line structure that is designed to have the capacity to hold the lateral strain of the conductor in one direction
- Demand:** The total amount of electricity required at any given time by an electric supplier's customers.
- DG:** Distributed Generation. Refers to modular electric generation or storage, located near the point of electric use, and generally involves the use of small generators located close to electric demand sources, to decrease end-users' electric purchases and to reduce the need for electricity generated by large, centrally-located power plants and power transport to load centers on transmission lines.
- Distribution:** Line, system. The facilities that transport electrical energy from the transmission system to the customer.
- Disconnect Switch:** Equipment installed to isolate circuit breakers, transmission lines or other equipment for maintenance or sectionalizing purposes.
- DPU:** (Massachusetts) Department of Public Utilities (formerly Department of Telecommunications and Energy)
- DRP:** Demand-response program.
- DRSP:** Demand-response service provider
- Duct:** Pipe or tubular runway for underground power cables (see also Conduit).
- Duct Bank:** A group of ducts or conduit usually encased in concrete in a trench.
- EFSB:** Energy Facilities Siting Board (Massachusetts)
- Electric Field:** Produced by voltage applied to conductors and equipment. The electric field is expressed in measurement units of volts per meter (V/m) or kilovolts per meter (kV/m); 1 kV/m is equal to 1,000 V/m.
- Electric Transmission:** The facilities (69 kV+) that transport electrical energy from generating plants to distribution substations.
- EMF:** Electric and magnetic fields.
- ENE:** Eastern New England
- EPA:** United States Environmental Protection Agency
- Fault:** A failure (short circuit) or interruption in an electrical circuit.
- FCM:** Forward Capacity Market
- FEMA:** Federal Emergency Management Agency
- FERC:** Federal Energy Regulatory Commission
- G:** Gauss; 1G = 1,000 mG (milligauss); the unit of measure for magnetic fields.
- GIL:** Gas-Insulated Transmission Line using sulfur hexafluoride gas (SF₆).
- GIS:** Gas-Insulated Substation
- GSRP:** Greater Springfield Reliability Project
- Ground Wire:** Cable/wire used to connect wires and metallic structure parts to the earth. Sometimes used to describe the lightning shield wire.
- HDD:** Horizontal directional drill
- H-frame Structure:** A wood or steel structure constructed of two upright poles with a horizontal cross-arm and bracings.
- HPFF Pipe Cable System:** High-pressure fluid-filled; a type of underground transmission line.
- HPGF Pipe Cable System:** High-pressure gas-filled, a type of underground transmission line.
- Hz:** Hertz, a measure of alternating current frequency; one cycle/second.
- Impedance:** The combined resistance and reactance of the line or piece of electrical equipment which determines the current flow when an alternating voltage is applied
- ISO-NE:** Independent System Operator New England, Inc. New England's independent system operator.
- kcil:** 1,000 circular mils, approximately 0.0008 sq. in.
- kV:** kilovolt, equals 1,000 volts
- kV/m:** Electric field unit of measurement (kilovolts/meter)
- Lattice-type Structure:** Transmission or substation structure constructed of lightweight steel members.
- Lightning Shield Wire:** Electric cable located to prevent lightning from striking transmission circuit conductors.
- Line:** A series of overhead transmission structures which support one or more circuits; or in the case of underground

- construction, a duct bank housing one or more cable circuits.
- LMP:** Locational marginal pricing
- Load:** Amount of power delivered as required at any point or points in the system. Load is created by the power demands of customers' equipment (residential, commercial, industrial).
- Load Pocket:** A load area that has insufficient transmission import capacity and must rely on out-of-merit order local generation.
- LOLE:** Loss of Load Expectation; a measure of bulk-power system reliability.
- LPFF:** Low-pressure fluid-filled; a type of self-contained fluid filled (SCFF) underground transmission line.
- LPP:** Laminated paper-polypropylene; a type of cable insulation.
- Magnetic Field:** Produced by the flow of electric currents; however, unlike electric fields, most materials do not readily block magnetic fields. The level of a magnetic field is commonly expressed as magnetic flux density in units called gauss (G), or in milligauss (mG), where $1\text{ G} = 1,000\text{ mG}$.
- Magnetic Flux Density:** See Magnetic Field
- Manhole:** See Splice Vault
- MHG:** Material Handling Guidelines
- mG:** milligauss (see Magnetic Field)
- MMP:** Manchester to Meekville Junction Circuit Separation Project
- MVA:** (Megavolt Ampere) Measure of electrical capacity equal to the product of the voltage times the current times the square root of 3. Electrical equipment capacities are sometimes stated in MVA.
- MVAR:** (Megavolt Ampere Reactive) Measure of reactive power.
- MW(s):** (Megawatt(s)) Megawatt equals 1 million watts, measure of the work electricity can do.
- MWh:** per megawatt hour
- NEWS:** New England East – West Solution
- NEPOOL:** New England Power Pool
- NERC:** North American Electric Reliability Council
- NESC:** National Electrical Safety Code
- NPCC:** Northeast Power Coordinating Council
- NRCS:** Natural Resources Conservation Service (United States Department of Agriculture)
- NRHP:** National Register of Historic Places
- OH (Overhead):** Electrical facilities installed above the surface of the earth.
- Phases:** Transmission (and some distribution) AC circuits are comprised of three phases that have a voltage differential between them.
- Pothead:** See Terminator
- Protection/Control Equipment:** Devices used to detect faults, transients and other disturbances in the electrical system in the shortest possible time. They are customized or controlled per an entity's operational requirements.
- PSI:** Pounds per square inch
- Reactive Power:** The portion of electricity that establishes and sustains the electric and magnetic fields of alternating-current lines and equipment owing to their inductive and capacitive characteristics. Reactive power is provided by generators, synchronous condensers, and capacitors, absorbed by reactive loads, and directly influences electric system voltage. Shunt capacitor and reactor capacities are usually stated in MVAR.
- Rebuild:** Replacement of an existing overhead transmission line with new structures and conductors generally along the same route as the replaced line.
- Reconductor:** Replacement of existing conductors with new conductors, but with little if any replacement or modification of existing structures.
- RGGI:** Regional Greenhouse Gas Initiative
- Reinforcement:** Any of a number of approaches to improve the capacity of the transmission system, including rebuild, reconductor, conversion and bundling methods.
- Right-of-way:** ROW; corridor
- RFP:** Request for Proposal
- RPS:** Renewable Portfolio Standards
- RSP:** Regional System Plan prepared annually by ISO-NE.
- RTE:** Rare, threatened and endangered.
- SCADA:** Supervisory Control and Data Acquisition

- SCFF Cable System:** Self-contained fluid-filled hollow-core cable; a type of underground transmission line used primarily for submarine installations.
- Series Reactor:** A device used for introducing impedance into an electrical circuit, the principal element of which is inductive reactance.
- SEMA/RI:** Southeastern Massachusetts and Rhode Island area
- SF₆:** Sulfur hexafluoride, an insulating gas used in GIS substations and circuit breakers.
- Shield Wire:** See Lightning Shield Wire
- SHPO:** State Historic Preservation Office
- Shunt Reactor:** An electrical reactive power device primarily used to compensate for reactive power demands by high voltage underground transmission cables.
- Splice:** A device to connect together the ends of bare conductor or insulated cable.
- Splice Vault:** A buried concrete enclosure where underground cable ends are spliced and cable-sheath bonding and grounding is installed.
- SNE:** Southern New England
- S/S (Substation):** A fenced-in yard containing switches, transformers, line-terminal structures, and other equipment enclosures and structures. Adjustments of voltage, monitoring of circuits and other service functions take place in this installation.
- Steel Lattice Tower:** See Lattice-Type Structure
- Steel Monopole Structure:** Transmission structure consisting of a single tubular steel column with horizontal arms to support insulators and conductors.
- Step-down Transformer:** See Transformer
- Step-up Transformer:** See Transformer
- Switchgear:** General term covering electrical switching and interrupting devices. Device used to close or open, or both, one or more electric circuits.
- Stormwater Pollution Control Plan:** Is a sediment and erosion control plan that also describes all the construction site operator's activities to prevent stormwater contamination, control sedimentation and erosion, and comply with the requirements of the Clean Water Act
- SWCT:** southwest quadrant of the state
- Terminal Points:** The substation or switching station at which a transmission line terminates.
- Terminal Structure:** Structure typically within a substation that ends a section of transmission line.
- Terminator:** A flared pot-shaped insulated fitting used to connect underground cables to overhead lines.
- Transformer:** A device used to transform voltage levels to facilitate the efficient transfer of power from the generating plant to the customer. A step-up transformer increases the voltage while a step-down transformer decreases it.
- Transmission Line:** Any line operating at 69,000 or more volts.
- UG (Underground):** Electrical facilities installed below the surface of the earth.
- Upgrade:** See Reinforcement
- USACE:** United States Army Corps of Engineers (New England District)
- USFWS:** United States Fish and Wildlife Service
- USGS:** United States Geological Survey (U.S. Department of the Interior).
- VAR:** Volt-ampere reactive power. The unit of measure for reactive power.
- Vault:** See Splice Vault.
- V/m:** volts per meter, kilovolt per meter: 1,000 V/m = 1 kVm; electric field measurement
- Voltage:** A measure of the push or force that transmits energy.
- Watercourse:** Rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs, and all other bodies of water, natural or artificial, public or private.
- Wetland:** is an area of land consisting of soil that is saturated with moisture, such as a swamp, marsh, or bog
- WMA:** Wildlife Management Area
- XLPE:** Cross-linked polyethylene (solid dielectric) insulation for transmission cables.

