

Substation: A station at which the voltage of the bulk power system is stepped down to a level suitable for distribution, and at which the feeders at this lower voltage originate and may be switched on or off.

Sulphur dioxide: A heavy, odourless, suffocating gas with the chemical formula SO_2 . It occurs in the flue gases emitted from furnaces where fuel is burned, including thermal generating stations. Combining with water vapour in the atmosphere, and in the presence of sunlight, it produces sulphuric acid and together with other acids leads to the phenomenon of acidic precipitation.

Summer peak: The highest load on a power system during the summer, usually caused by air conditioning in hot weather.

Superconductor: An electrical conductor offering negligible resistance to the flow of electricity.

Surplus energy: Energy that is surplus to the needs of its owner, including both load and reserve. Surplus energy can be produced whenever the total generating capacity exceeds the total load, and is often sold on an interruptible basis.

Switching station: A station at which the transmission lines of a power system can be selectively connected or disconnected by means of switchgear.

Synchronism: The condition of alternating current generators being "in phase"; that is, timed so that their voltage waves reach the maximum and minimum values at exactly the same instant. This is an essential condition in order for alternating current generators to operate on the same system.

Synchronous tie: Any alternating current tie line. All generating units interconnected by the tie must be in synchronism.

Thermal generating station: An electric generating station where the prime movers are driven by gases or steam produced by burning fuels (such as coal, oil, gas, wood or refuse) or by nuclear processes.

Time-of-use (time-differentiated) rates: Rates which vary based on the time of day, day of the week, or season of the year.

Transformer: An electromagnetic device for raising or lowering the voltage of alternating current electricity.

Transmission line: A line used for the transmission of electric power at high voltage. Transmission lines may be constructed overhead, underwater or underground. Lines of voltage less than 115 kilovolts are usually considered to be subtransmission or distribution.

Transmission system: Lines, transformers, switches, etc. used to transport electricity in bulk from sources of supply to other principal parts of the system. Transmission is generally at voltages of 115 kilovolts and above.

Turbine (hydraulic): A rotary type of prime mover in which mechanical energy is produced by the force of water, steam or gas directed against blades fastened to a rotating shaft.

Ultra high voltage (UHV): Any voltage in excess of approximately 1,000 kilovolts.

Voltage: The electrical force, measured in volts or multiples of volts (e.g. kilovolts) that causes a current to flow in a circuit. In North America, the standard voltage for residential use is 115 volts, with 230 volts used for heavy appliances such as ranges, dryers and hot water heaters. Voltages used for urban and rural distribution range from about 4 kV to 44 kV. The most common transmission voltages are 115, 132, 230, 345, 500 and 735 kV. The higher the voltage, the more power a transmission line can carry.