

Electrical System Definitions:

Conductor: A substance or body that allows an electric current to pass continuously along it.

Distribution Line: A low voltage power line designed to deliver power from convenient points on transmission lines or from substations to the final power consumer. TEP's distribution line voltages are 13.8 kV or 4.16 kV.

Insulator: Supports that attach the conductor to power poles while isolating the pole from current that passes through the conductor, usually made of materials that do a poor job of conducting electricity.

Interconnect: A connection between two electric circuits permitting the transfer of electric energy in either direction.

kV: Abbreviation of kilovolt, a measurement of voltage. A 138 kV line has 138,000 volts going through it.

Load Center: A point at which the load (customers' electric demand) of a given area is assumed to be concentrated. The load center is determined through an area study.

Pull boxes and junction boxes: Access boxes that allow for installation or removal of cables in conduit connected to the box. Pull boxes allow lengths of wire to be installed in shorter intervals.

Redundancy: Having more than one cable or electric source carrying power supplying a given area.

Self-Weathering steel monopole: A transmission line structure constructed with a single steel pole to support cable spans that weathers over time. TEP now primarily uses monopoles in place of larger lattice structures.

Substation: A set of equipment used for switching, changing and regulating the voltage of electricity to suitable levels for supply to consumers or for long distance transport. Acts as a hub, supplying power to nearby consumers or transmission facilities, and allowing TEP to cut off power in case of an emergency.

Sub-transmission Line: A medium voltage power line designed to carry electric energy in bulk from a source or sources of supply to the distribution system and in certain cases to ultimate customers. TEP maintains sub-transmission lines with voltages of 46 kV.

Switchgear: Electrical disconnect switches, fuses, or circuit breakers used to control, protect, and isolate electrical equipment. Switchgear allows the utility to turn on and turn off service to an area dependent on need.

Transformer: An electromagnetic device for changing the voltage of alternating-current electricity.

Transmission Line: A high voltage power line designed to carry electricity in bulk, for long distances, and with minimum losses from power sources to other principal parts of the electric system or other utilities. The ACC considers power lines with voltages of 115 kilovolts (kV) or more as transmission lines. TEP maintains transmission lines with voltages of 138 kV, 345 kV, and 500 kV.

Voltage: The 'push' (difference in electrical potential) that causes charges to move in a conductor.

Regulations, Organizations, and Legal Definitions:

Arizona Corporation Commission (ACC): A state regulatory agency that regulates corporations and utilities within the state of Arizona. The ACC is responsible for final approval of CEC. Website: <https://azcc.gov/>

Arizona Power Plant and Transmission Line Siting Committee: Also known as the 'Line Siting Committee,' this ACC committee serves as a single, independent forum to evaluate applications to build power plants or transmission projects in the state. Website: <https://azcc.gov/arizona-power-plant/line-siting-committee>

Certificate of Environmental Compatibility (CEC): A certificate provided by the Arizona Corporation Commission (ACC) that allows for the construction of transmission line and generation 115 kV or greater.

Community Working Group (CWG): An important link to the community. Includes neighborhood representatives and constituents within a project study area. Neighborhood representatives provide a unified perspective on behalf of their neighborhood to share with the rest of the CWG. Members can present a range of opinions in a forum small enough to allow for education of participants, detailed discussion of issues, and informal dialogue. Member input is crucial in planning for a project by bringing forth issues, ideas and concerns held by the members and their constituency.

Easement: A right of way giving persons other than the owner access to or over a property through an agreement between both parties.

Right of Way (ROW): The right to use a particular path for access or passage over another's property, typically linear in nature. ROWs can be a type of easement.

Stakeholder Group: Technical experts representing other utilities and federal, state and local jurisdictions that can provide information related to how the project may directly impact their facilities.

Study Area: The area considered for line siting. Identification is based on natural geographic features or man-made boundaries, project needs, existing infrastructure and considerations of potential routes.