

# Transmission & Distribution

## Glossary of Electrical Terms

Term	Definition
Breaker Panel	The main distribution point for electrical circuits in a customer's home or business that divides an electrical power feed into subsidiary circuits, while providing a protective fuse or circuit breaker for each circuit in a common enclosure.
Bushing	An insulated device that allows an electrical conductor to pass safely through a grounded conducting barrier such as the case of a transformer or circuit breaker.
Circuit	A closed path in which electrons flow from a power source and return to ground.
Circuit Breaker	An automatically operated electrical switch that protects an electrical circuit from damage. It interrupts current flow in the event of a fault caused by overload or short circuit.
Conductor	Another name for metal wire (usually made of copper or aluminum) that facilitates the flow of an electrical current.
Conduit	In underground service, typically plastic pipe containing electrical wires that are installed in the earth. Above-ground installations often use metal pipe.
Consumption	The amount of electricity used in a given billing cycle or month that is registered through the electric meter.
Current	The steady flow of electrons. Current moves either in one direction, which is called direct current (DC) or in a back-and-forth direction, which is called alternating current (AC). Current is measured in amperes (amps) and is represented by the letter "I."
Distribution	The movement of electrical energy stepped down at a substation from a transmission voltage level to a lower level that can be sent to customer homes and businesses.
Electricity (Static vs. Current)	An imbalance of electric charges within or on the surface of a material. The charge remains until it is able to move away by means of a sudden electrical discharge (static electricity) or a continuous electrical flow through wires or other conductors that transmit energy (current electricity).
Electron	The particle in an atom that carries a negative charge.
Feeder	The main 3-phase distribution line that carries service out from the substation.

Term	Definition
FLN (Field Location Number)	Unique number that labels each piece of equipment and is used for locating Oncor facilities in the field and on maps.
Frequency (Hertz)	The number of complete cycles per second of a wave in alternating current. The standard measurement unit of frequency is hertz (Hz). The U.S. transmission standard is 60 cycles per second.
Gang Meter Base	Weather-proof group of attached meter sockets at one location, such as multiple units at an apartment building.
Ground (Wire or Rod)	The reference point in an electrical circuit from which voltages are measured; a common return path for electric current. The ground wire or rod is typically copper and connects directly to the earth to carry current in the event of a fault.
Guard Light	Overhead lights mounted on poles located on private property that contain photocells to turn on and off with light sensors. Guard lights are owned by Oncor and typically face the customer's property rather than the street.
Handhole	Shallow ground level enclosure to connect underground service and secondary electrical connections.
Inductance	Alternating current in a primary circuit can cause the surrounding magnetic field to "induce" or generate current in a secondary circuit.
Instrument-Rated Meter	Meter setup for load requirements exceeding 320 amps and/or 240 volts. Rather than connecting the meter directly to service wires, current and voltage transformers send a fraction of the current and voltage values to the meter. The meter reading must be multiplied by a factor based on the CT and VT ratios. Removing the meter does not de-energize the power to the premise since it is not in the circuit path.
Insulator	Material in an electric field that blocks electric current conductance because internal electric charges do not flow freely. Rubber, glass, and porcelain are examples of good insulator material.
Lateral	Taps off the Feeder line that distribute power to customers. Some are three-phase laterals and some are single-phase laterals. Single phase laterals are often found in rural areas and along residential alleys.
Load Tap Changer	A device in a substation that allows the utility to regulate the feeder voltage.

Term	Definition
<p>Meter (AMS &amp; Mechanical)</p>	<p>Electronic device that tracks and records a customer's electric use. Two types of electric meters include:</p> <ul style="list-style-type: none"> <li>• <b>Advanced Meter</b> – automatically captures usage and data about electricity consumption and displays the alpha/numeric values on an LCD screen. It contains remote access, data transmission, and other communication capabilities across a network.</li> <li>• <b>Mechanical Meter</b> – An older analog design that captures information about electricity consumption using a rotating aluminum disc. Power passing through the meter spins the disc proportionally and dials display meter data that must be manually read and recorded.</li> </ul>
<p>Meter Base</p>	<p>A weatherproof box usually attached to the wall of a structure that contains a socket for mounting an electric meter. The meter base is the customer's responsibility. If it is damaged, most city electric codes require a city inspection before electric service can be restored.</p>
<p>Meter Seal</p>	<p>Locking clamp used to restrict access to the inside of the meter base. Broken meter seals often indicate that someone has tampered with the meter.</p>
<p>Neutral</p>	<p>A wire that normally carries current back to the source and is connected to ground (earth) at the main electrical panel.</p>
<p>Overhead Service (Service Drop)</p>	<p>Electric conductor extending from an overhead transformer to the customer's point of delivery.</p>
<p>Padmount Transformer</p>	<p>Underground service equipment housed in a weather-proof box that sits at ground level to step down higher distribution voltage to a lower level that customers can use. Transformers are rated in <b>kVA</b> which is the abbreviation for 1,000 volt amps.</p>
<p>Point of Delivery</p>	<p>Connection point that transitions electricity from overhead service wires to the customer's wires.</p>
<p>Power (Watts)</p>	<p>The energy required to serve the load, such as illuminating a light bulb or running a motor. Power is measured in watts. To calculate the amount of power on a circuit, multiply the voltage by the current:</p> $P \text{ (watts)} = V \text{ (volts)} \times I \text{ (amps)}$ <p>1 kilowatt = 1,000 watts                      1 kilowatt hour = 1,000 watt hours                      1 Megawatt = 1,000,000 watts (1,000 kilowatts)</p>
<p>Resistance</p>	<p>Any friction or force that slows current flow and is measured in ohms. Resistance (R) converts to heat which causes voltage drop over distance.</p>

Term	Definition
Secondary Pedestal	Secure enclosure mounted on the ground for housing secondary electrical connections. Underground conductors often run first from a padmount transformer to a secondary pedestal and then exit to serve multiple homes.
Self-Contained Meter	Meter setup for most residential and small business load requirements limited to 320 amps and/or 240 volts. The meter is connected directly to the customer's electrical service wires so if the meter is removed, the power to the premise will be de-energized. Customer load requirements pass directly through the meter, meaning it records consumption and demand directly from the circuit. A self-contained meter uses a multiplier of 1, except for very rare instances.
Service Grip	Clamp that secures the service wire to the service mast (or any form of distribution wire to a termination point).
Service Mast	The riser or pipe extending from the top of a meter base up to the weatherhead where overhead electric service enters the customer's home or business.
Service Riser	Plastic pipe that carries the conductors from underground service to the meter.
Single-Phase	AC electric power consisting of repeating single wave cycles. Single-phase power is used for most residential and small, non-industrial business customers where demand primarily involves lighting and heating with few small electric motors.
Substation	A high-voltage electric facility that provides electric switching capabilities and converts voltage from one level to another, such as a transmission level at 138 kV to a distribution level at 12.5 kV.
Tap Can (Service Enclosure)	A connection enclosure used for the purpose of connecting the service lateral to the customer's electrical installation. Multiple taps are available in the tap can to supply power to as many commercial meter bases or transockets as needed.
Three-Phase	AC electric power consisting of three equal wave cycles offset in thirds that overlap and peak sequentially. This constantly repeating wave pattern produces the consistent power that large business and manufacturing equipment require to run efficiently.
T-Pole	An overhead wooden temporary pole installed at a construction site and removed when the customer is able to accept permanent power. Construction companies use this type of pole to include a meter base and a small breaker box as a point of contact for receiving temporary power when needed. T-poles can be used for overhead and underground applications.

Term	Definition
Transformer	Electrical device that receives voltage from one circuit and converts it into a different voltage for another circuit.
Transmission	The movement of high-voltage electrical energy from a generator at a power plant to an electrical substation.
Transocket	A metal enclosure, similar to the meter base, which includes instrument transformers and a meter socket for larger loads. Transockets are typically located on non-residential premises.
Underground Service	A service wire buried underground that extends from a transformer to a meter base, as opposed to an overhead service.
Voltage	The force that makes electric current move through a wire and is measured in volts (V). The bigger the voltage, the more current will flow. In electric service, voltage refers to the generated power we deliver to a customer.
Watt Hour	Amount of electricity used over a period of 1 hour. <b>watts X time = watt hour</b>
Weatherhead	The waterproof cap shaped like a hood on the top of the service mast that marks the point of delivery where Oncor connects service wires to the customer's wires.