

How Does An Electric System Work?

Electric systems are designed to supply customers with safe, reliable and affordable energy. But doing that requires a number of complex processes and systems. Of course not all systems are designed exactly alike because each community has its own special needs, as well as its own special geography. However, the basic components are the same:

1. **Power plant** – Electricity starts here, produced by spinning generators that are driven by water, a diesel engine, or a natural gas or steam turbine. Steam is made by burning coal, oil or natural gas or by a nuclear reactor. When needed, extra power is brought into an electric system from plants outside the area.
2. **Power grid** – Electricity is carried over a network, or “grid,” that connects power plants to a substation and from there to distribution lines that take the power to homes or businesses.
3. **Transmission substation** – These facilities look like giant erector sets connected to wires from the power plant. Here large transformers increase voltage from thousands to hundreds of thousands of volts so the power can be sent over long distances.
4. **Distribution Substation** – You see them around towns and cities. They are those small fenced-in areas that have electric lines coming in and going out. Inside these fenced-in areas are transformers that reduce voltage to a lower level so the power can be sent out on distribution lines to the surrounding community.

5. **Distribution system** – Includes main or primary lines and lower-voltage or secondary lines that deliver electricity through overhead or underground wires to homes and businesses. You see these lines every day on poles alongside roads and streets.
6. **Service connection** – That’s the line that connects to the meter on the side of homes and businesses. The meter is used to determine how many kilowatt-hours are used by each customer.

