

How dependable electricity reaches you

Most of us take reliable electric power for granted. But do you know what's really involved in getting that power to you?

Power Plant
At a generating plant, water is heated to steam using fuels such as natural gas, coal and oil; the steam turns turbines that turn generators to produce electric energy. In some areas, nuclear power or water flowing through hydroelectric dams powers the turbines.

Step-Up Substation
Transformers at the generating plant increase the voltage up to 345,000 volts, so it can travel long distances over high-voltage transmission lines.

High-Voltage Transmission Lines
These lines carry the electric energy over long distances. Insulators on the towers prevent the power from flowing to the towers or the ground.

Consumer-Owned Renewable Generation
A wind turbine, solar panel array or methane digester is interconnected to the co-op's lines through a cut-off switch and other equipment. The switch disconnects the turbine from the line to ensure the safety of linemen working during outages and regular maintenance projects.

Large Industrial User
Most industries need 2,400 to 4,160 volts to run heavy machinery. They usually have their own substation at the facility.

Transmission Substation
Transformers reduce the electric energy up to 69,000 volts, making it suitable for high-volume delivery over short distances.

Distribution Lines
Lines belonging to local electric co-ops carry electricity to transformers that reduce power levels to 120/240 or 120/208 volts for use in schools, farms, homes and small businesses.

Local Distribution Substation
Local electric co-ops operate several of these substations to reduce electricity to 7,200-14,400 volts for distribution to their members.

