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Electrical Power Substation

Transmission and Distribution

You see some parts of the power grid all around you. There is probably a substation within a few blocks of your home. Substations can split the power distribution into two or more directions, but they do not make or use power. The power entering a substation is equal to the power leaving the substation. Another job of a substation is to take the high voltage power produced by the generators and transform it to a lower voltage.

There is probably a power pole with a transformer drum very near where you live. If your neighborhood has underground power, the transformer is in a green box that is about one meter on each side. These transformers lower the voltage again so that it can be used in homes, school, and businesses.

TCIPG

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High Voltage Transmission Lines

Transmission and Distribution

High voltage transmission lines move electricity at the speed of light over long distances. Transmitting power at these higher voltages reduces the amount lost as it travels. These heavier cables usually connect a power plant generator to a substation where the power can be stepped down and distributed to neighborhoods.

There are more than 500,000 miles of high voltage power lines in the United States.

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Hoover Dam

Hydroelectric Generation

Hoover Dam is a project of the U.S. Government. It was built on the Colorado River to protect against floods and to provide a stable water supply to parts of Wyoming, Utah, Colorado, Nevada, California, Arizona, and New Mexico. Every state contributed supplies and materials. Work on the dam began in 1931 and was completed in 1935.

An added benefit of constructing Hoover Dam is the pollution free electricity it generates. The income from selling this power has repaid the original construction costs and continues to pay for operations and maintenance.

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