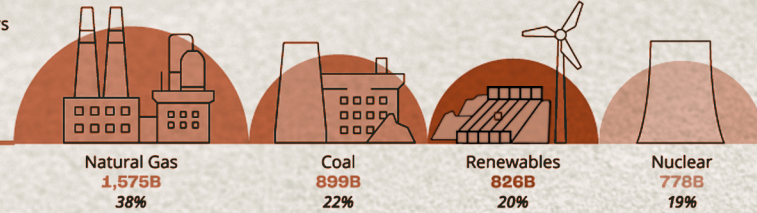


01 Electricity Generation

In the U.S., over 11,000 power plants generate more than 4 trillion kilowatt-hours (kWh) of electricity annually. These are fueled by various energy sources.

2021 U.S. Electricity Generation by Source (kWh)

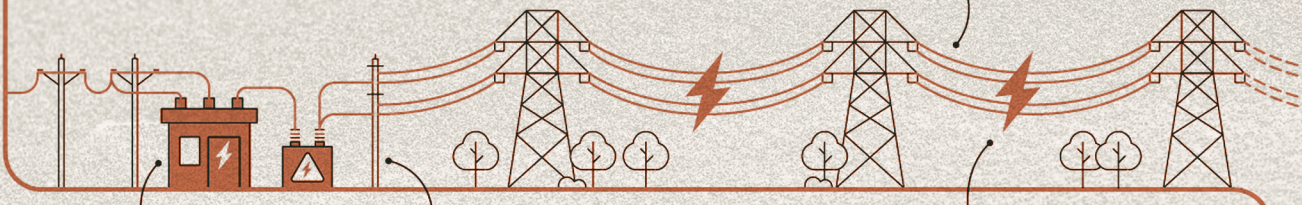
More than 3,400 public, private, and investor-owned utilities own and operate U.S. power plants.



02 Transmission

After generation, electricity needs to travel from power plants to centers of demand through a process known as transmission.

The U.S. grid has over 600,000 miles of transmission lines.



First, the electricity is sent from power plants to substations where **step-up transformers** convert it into extremely high-voltages.

High-voltage conversions help minimize how much electricity is lost in transmission across long distances (around 5% in the U.S.).

Transmission line voltages can vary from 69kV to 765kV, and lines are interconnected and shared across the nation.

03 Distribution and Consumption

Distribution is the final stage of delivering electricity. It is the process of transporting power from the transmission system to individual consumers.

Transmission lines deliver the electricity to local substations where **step-down transformers** reduce the voltage for distribution.

2021 Retail Electricity Sales (kWh)



Distribution poles host smaller localized transformers that optimize voltage for specific end users.

At all times, the amount of electricity sent through the grid must equal the amount of electricity consumed. For this reason, electricity supply often fluctuates throughout the day, usually peaking in the evenings.

Based on the average consumption for U.S. residential utility customers, this amount of electricity could power 139 million American homes in 2021.



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