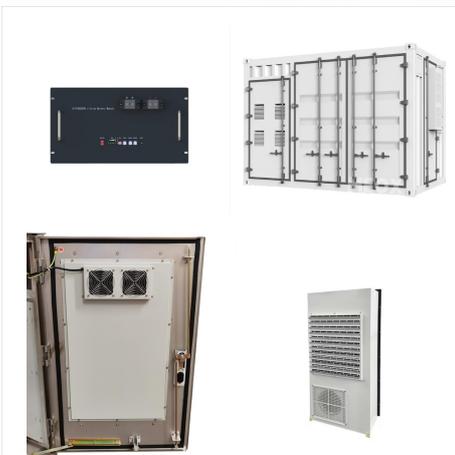




The power generation process involves several steps, starting with producing energy using fossil fuels, nuclear reactions, or renewable energy sources. The energy is then used to produce steam, which turns turbines connected to generators that convert mechanical energy into a?



Most electricity is generated from power plants that utilize steam turbines to convert mechanical (also called kinetic) energy into electrical energy. The rotation of the turbine spins the rotor, a set of magnets or electromagnets, inside the core of the stator, a coil of wires.



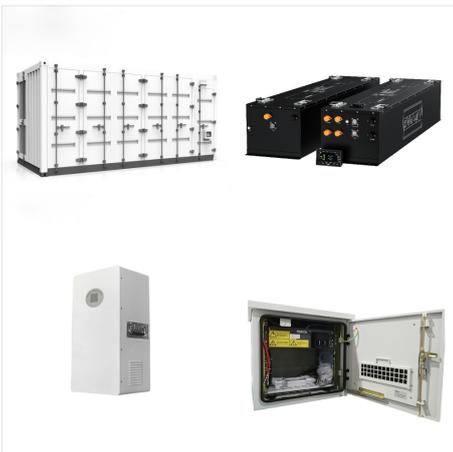
Learn more about the advantages of wind energy, solar energy, bioenergy, geothermal energy, hydropower, and marine energy, and how the U.S. Department of Energy is working to modernize the power grid and increase renewable energy production.



Electricity generation is the process of generating electric power from sources of primary energy. For utilities in the electric power industry, it is the stage prior to its delivery (transmission, distribution, etc.) to end users or its storage, using for example, the pumped-storage method.



Solar energy is a form of renewable energy, in which sunlight is turned into electricity, heat, or other forms of energy we can use. It is a "carbon-free" energy source that, once built, produces none of the greenhouse gas emissions that are driving climate change.



An electric generator is a device that converts a form of energy into electricity. There are many different types of electricity generators. Most electricity generation is from generators that are based on scientist Michael Faraday's discovery in 1831.



Solar technologies convert sunlight into electrical energy either through photovoltaic (PV) panels or through mirrors that concentrate solar radiation. This energy can be used to generate electricity or be stored in batteries or thermal storage.



Total annual U.S. electricity generation from wind energy increased from about 6 billion kilowatthours (kWh) in 2000 to about 434 billion kWh in 2022. In 2022, wind turbines were the source of about 10.3% of total U.S. utility-scale electricity generation.