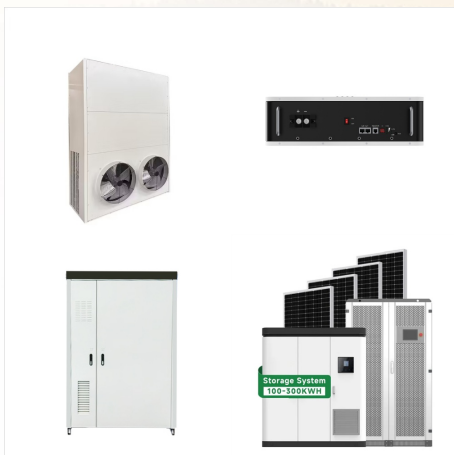




The myths boil down to this: Relying on renewable sources of energy will make the electricity supply undependable. The influx of larger amounts of renewable energy does not change that reality, even if the ways they deal with variability and uncertainty are changing. Modern grid operators emphasize diversity and flexibility rather than



In 2020, renewable energy sources (including wind, hydroelectric, solar, biomass, and geothermal energy) generated a record 834 billion kilowatthours (kWh) of electricity, or about 21% of all the electricity generated in the United States. Only natural gas (1,617 billion kWh) produced more electricity than renewables in the United States in 2020. . Renewables ???



Washington leads the nation in electricity generation from hydroelectric power and accounted for about 25% of the nation's total hydroelectric generation in 2023. 49 The state was third in the nation, after Texas and California, in utility-scale renewable generation from all sources. In 2023, Washington produced about 8% of the nation's total renewable-sourced ???

# HOW DOES RENEWABLE ENERGY PRODUCE ELECTRICITY



Like solar power, biomass is a flexible energy source, able to fuel vehicles, heat buildings, and produce electricity. But biomass can raise thorny issues. Critics of corn-based ethanol, for example, say it competes with the food market for corn and supports the same harmful agricultural practices that have led to toxic algae blooms and other



Energy lies at the core of the climate challenge ??? and holds the key to its solution. Most greenhouse gasses responsible for causing global warming are produced by burning fossil fuels for electricity and heat.. Scientists widely agree that it's crucial to cut global greenhouse gas emissions by nearly half by 2030.They also emphasize the importance of achieving net zero ???



Fast Facts About Renewable Energy. Principle Energy Uses: Electricity, Heat Forms of Energy: Kinetic, Thermal, Radiant, Chemical The term "renewable" encompasses a wide diversity of energy resources with varying economics, technologies, end uses, scales, environmental impacts, availability, and depleatability.

# HOW DOES RENEWABLE ENERGY PRODUCE ELECTRICITY



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. He found that moving a magnet inside a coil of wire makes (induces) an electric current flow through the wire.



Solar power plants use the energy of sunlight to generate electrical power through solar panels, and geothermal power plants use the earth's natural heat to produce electrical power. These renewable energy sources are clean and sustainable, but geographical and meteorological factors may limit availability.



Natural gas is a largely imported fossil fuel and can emit harmful GHGs, such as carbon dioxide (CO<sub>2</sub>), when burned to generate electricity. How much of our energy currently comes from renewable sources? Today, renewable energy sources make up a significant proportion of the electricity mix that powers our homes and businesses.

# HOW DOES RENEWABLE ENERGY PRODUCE ELECTRICITY



Hydropower, or hydroelectric power, is one of the oldest and largest sources of renewable energy, which uses the natural flow of moving water to generate electricity. Hydropower currently accounts for nearly 27% of total U.S. utility-scale renewable electricity generation and 5.7% of total U.S. utility-scale electricity generation.



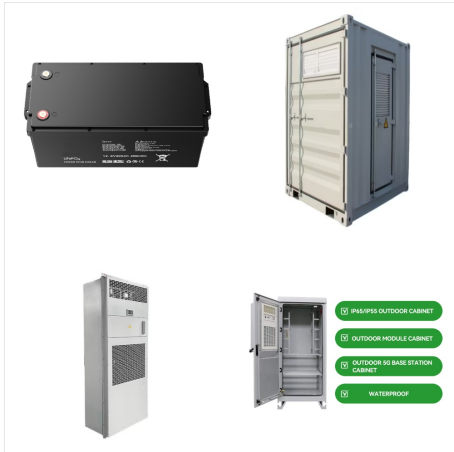
renewable energy by 2030. Renewable electricity generation is now equal to 51% of electricity consumption in Wales. We are 83% of the way towards our target of 1 GW of renewable energy capacity in Wales to be locally owned by 2030. An additional 145 MW of new renewable electricity



Among the largest of these is the \$51 billion Asian Renewable Energy Hub, which plans to produce 26 gigawatts of cheap solar and wind power for the Pilbara. That's more power than Australia's



# HOW DOES RENEWABLE ENERGY PRODUCE ELECTRICITY



That said, the rate at which solar panels generate electricity does vary depending on the amount of direct sunlight and the quality, size, number and location of panels in use. Both the UK and US governments are aiming to decarbonise their electricity systems by 2035, in which renewable energy sources like solar power are set to play a



Renewable energy sources: The four main sources of renewable energy in the UK are wind, solar, hydropower and bioenergy. Non-renewable energy sources: These include coal, fossil fuels and nuclear power, and are usually generated by power stations. Because renewable energy sources are generally cleaner, greener and cheaper, it's obviously more

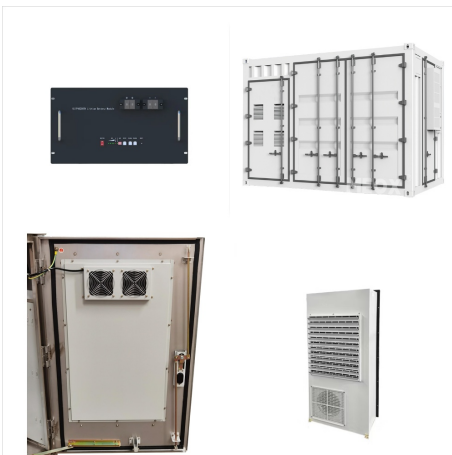


The most common renewable energy sources In the UK, there are four main sources of renewable energy: Wind. Wind power is the largest producer of renewable electricity in both the UK and the US. Onshore and offshore wind farms generate electricity by spinning the blades of wind turbines. The turbines convert the kinetic energy of the spinning

# HOW DOES RENEWABLE ENERGY PRODUCE ELECTRICITY



Renewable energy sources accounted for 9% of Australian energy consumption in 2022-23. Renewable electricity generation has more than doubled over the last decade, but combustion of biomass such as firewood and bagasse (the remnant sugar cane pulp left after crushing) still constitutes about a third of all renewable energy consumption in Australia.



In partnership with EERE, eSolar developed the world's first modular molten salt power tower, a high-temperature, high-efficiency technology that General Electric has licensed to pair with its ???



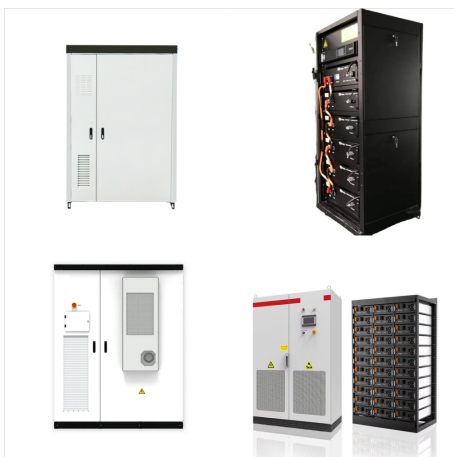
Renewable energy is the fastest-growing energy source in the United States, increasing 42 percent from 2010 to 2020 (up 90 percent from 2000 to 2020). Biomass energy sources are used to generate electricity and provide direct heating, and can be converted into biofuels as a direct substitute for fossil fuels used in transportation. Unlike

# HOW DOES RENEWABLE ENERGY PRODUCE ELECTRICITY



## HOW DO WE GET ENERGY FROM WATER?

Hydropower, or hydroelectric power, is a renewable source of energy that generates power by using a dam or diversion structure to alter the natural flow of a river or other body of water. Hydropower relies on the endless, constantly recharging system of the water cycle to produce electricity, using a fuel???water???that is not ???



The chart below shows the percentage of global electricity production that comes from nuclear or renewable energy, such as solar, wind, hydropower, wind and tidal, and some biomass. When people quote a high number for the share of low-carbon energy in the electricity mix, we need to be aware that electricity is only part of the energy



There are five energy-use sectors, and the amounts???in quadrillion Btu (or quads)???of their primary energy consumption in 2023 were: 1; electric power 32.11 quads; transportation 27.94 quads; industrial 22.56 quads; residential 6.33 quads; commercial 4.65 quads; In 2023, the electric power sector accounted for about 96% of total U.S. utility-scale ???

# HOW DOES RENEWABLE ENERGY PRODUCE ELECTRICITY



Hydroelectric power is a form of renewable energy in which electricity is produced from generators driven by turbines that convert the potential energy of moving water into mechanical energy.

Hydroelectric power plants usually are located in dams that impound rivers, though tidal action is used in some coastal areas. It does not produce