

Nuclear Energy

Nuclear energy is produced from fission, which splits the large atoms of heavy elements like uranium into smaller atoms, releasing enormous amounts of energy. Thirty U.S. states have nuclear power plants, and nuclear energy makes up around 20% of the U.S. electricity supply.

Basics



Nuclear energy is released from the fission of heavy elements like uranium, a weakly radioactive metal found around the world. Fission splits large atoms into smaller atoms, releasing enormous amounts of energy. During electricity generation, the process of fission emits only water vapor but leaves behind spent fuel, which remains highly radioactive. Milling uranium, processing uranium into nuclear fuel, and operating nuclear power plants all create various types of nuclear waste, both low-level and high-level. [Read more](#)

Frequently Asked Questions

[What are the major sources and users of energy in the United States?](#)

U.S. Energy Information Administration

[How much electricity does a typical nuclear power plant generate?](#)

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[How many nuclear power plants are there in the U.S.?](#)

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Coal

Coal is a carbon-rich rock formed from plants that grew millions of years ago. Coal is a major source of electricity in the United States and the [largest source of energy for electricity generation worldwide](#).



Energy

All of the energy we use comes from the Earth, its atmosphere, or the Sun. Some resources are mined or extracted, like coal, uranium, oil, and gas. Others, like wind, solar, tidal, biomass, and hydropower resources, are harnessed at the Earth's surface. Geoscientists play an essential role in developing energy resources and evaluating their environmental impacts.



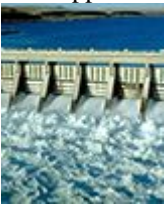
Geothermal Energy

Geothermal energy is harvested by drilling into underground reservoirs of steam or water heated by the Earth. While western states like California and Nevada [lead the country in geothermal energy production](#), emerging technologies may make it possible to extract geothermal energy throughout the United States.



Hydraulic Fracturing

Hydraulic fracturing is a technique used in one step of the extraction of energy resources. Sometimes referred to as "fracking," its wide application over the last decade has led to debate over its risks and benefits.



Hydropower

Hydropower uses the energy from moving water to power machines or generate electricity. Used for over two thousand years in water mills, today hydropower is more commonly associated with electricity generation.



Oil and Gas

Petroleum ("oil") and natural gas are hydrocarbons that formed over millions of years under heat and pressure deep in the Earth. Petroleum and natural gas are the largest sources of energy in the United States.



Renewable Energy

Renewable energy comes from sources that are constantly replenished, like running water, the heat of the Earth, the Sun's light, or wind. Renewables account for around **11% of U.S. energy consumption and 17% of electricity production**.



Solar Energy

Solar energy is energy from the Sun, which can be harnessed in several ways. Solar panels use the **photovoltaic effect** to generate electricity directly from sunlight. The Sun's heat can be used directly to heat **water** or air, or it can be **concentrated** to boil water, driving steam turbines that generate electricity.



Wind Energy

Wind energy is harnessed by wind turbines, which convert the energy of the wind into electricity. Wind energy is one of the largest sources of **renewable energy**. Wind farms can now be found in more than 40 states.

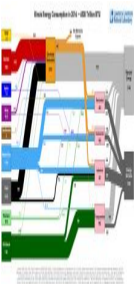
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Maps & Visualizations



[Visualization of energy use in every state](#)
Lawrence Livermore National Laboratory

The Lawrence Livermore National Laboratory, under the direction of the U.S. Department of Energy and using data from the Energy Information Administration, has produced flow charts showing the major sources and uses of energy in every U.S. state in the year 2014. Energy flows from the sources (...)

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2000, Kansas Geological Survey

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