

## 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.

### Basics



Geothermal energy comes from the heat of the Earth's interior. Reservoirs of steam or hot water with temperatures higher than about 225°F can generate electricity,[1] while lower-temperature geothermal fluids are often used directly for heating and other applications.[2] In western states like California and Nevada, hot rocks beneath the Earth's surface create shallow hot water reservoirs. Scientists are developing enhanced geothermal systems to extract heat from hot, dry rocks in order to produce electricity. [Read more](#)

### Frequently Asked Questions

What is an Enhanced Geothermal System?

American Geosciences Institute

Why is geothermal energy a renewable resource? Can it be depleted?

What are the major sources and users of energy in the United States?

U.S. Energy Information Administration

What is the potential for geothermal energy production in the United States?

U.S. Geological Survey

How much U.S. electricity is generated from renewable energy?

*Do you have a question that's not listed here? [Search all FAQs](#)*

## Explore Related Topics



### 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.



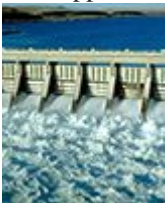
### Groundwater

Groundwater is the water found underground in the cracks and spaces in soil, sand, and rock. Groundwater has been used by humans for thousands of years; today it provides 25% of the fresh water used in the United States, mostly for irrigation and public water supplies.



### 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.



### 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.



### 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.

## Maps & Visualizations



Interactive map of geothermal resources in West Virginia

West Virginia Geological & Economic Survey

The West Virginia Geological and Economic Survey provides an interactive map of geothermal resources in the state. The map shows temperatures at specific depths underground, as well as the depth required to reach specific temperatures. In addition, a large amount of related information is also...

**Search all Maps & Visualizations** [>](#)

---