

Solar Energy

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Basics



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Solar power generation is most effective in places that have a lot of direct sunlight throughout the year. Low-latitude, desert areas are ideal, such as southern California, Arizona, and Nevada. However, most areas of the United States are sunny enough to use solar energy to some extent. Solar energy is only available when the sun is shining, so even in the sunniest places, nighttime energy needs must be provided by other energy sources. Scientists and engineers are working to develop advanced batteries to store energy generated from solar power and therefore make solar energy usable 24 hours a day. [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 U.S. electricity is generated from renewable energy?

U.S. Energy Information Administration

How much of world energy consumption and electricity generation is from renewable energy?

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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.



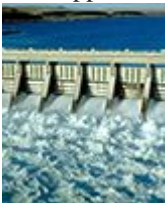
Geothermal Energy

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.



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.



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 solar energy suitability in Minnesota

Minnesota Department of Commerce

The Minnesota Department of Commerce provides an interactive map that allows users to assess the suitability for solar energy development across the state. Users can search the map by address or click anywhere in the state to see an assessment of the solar suitability for that location, including...

