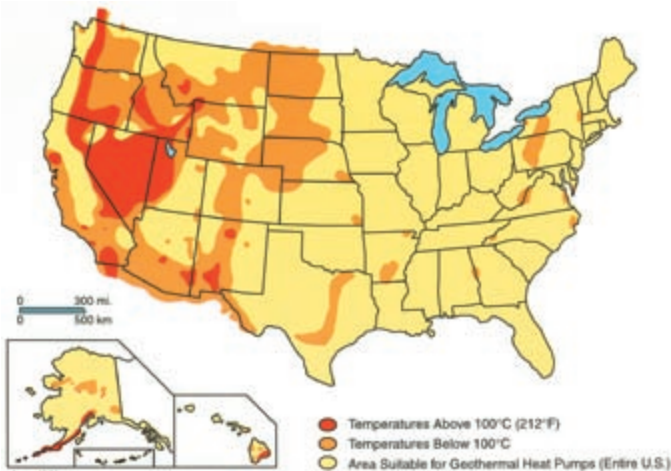


U.S. Geothermal Energy Potential



Geothermal heat pumps (GHPs) use the ground as an energy storage device. GHPs transfer heat from the building to the ground during the cooling season, and transfer heat from the ground to the building during the heating season. There are nearly one million GHPs in service in the United States today, with about 1,000 at schools and colleges. President Bush has a GHP system installed at his ranch in Crawford, Texas.

Benefits

Geothermal energy production in the United States is a 1.5 billion-dollar-per-year industry. Using geothermal energy contributes to our energy security and economic development.

Electricity produced from geothermal power plants in the United States prevents the emission of 4.1 million metric tons of carbon dioxide, 200,000 tons of sulfur dioxide, 80,000 tons of nitrogen oxides, and 110,000 tons of particulate matter every year compared to conventional coal-fired plants.

Contacts and Resources

General Geothermal Energy Information

U.S. Department of Energy
Geothermal Technologies Program
www.eere.energy.gov/geothermal
www.eere.energy.gov/geopoweringthewest

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Resources

Geo-Heat Center
geoheat.oit.edu

Geothermal Resources Council
www.geothermal.org

Geothermal Energy Association
www.geo-energy.org

Geothermal Biz.com
www.geothermal-biz.com

Geothermal Education Office
Geothermal.marin.org

Great Basin Center for
Geothermal Energy
www.unr.edu/geothermal

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Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

For more information contact:
EERE Information Center
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Energy Efficiency and Renewable Energy

Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

Geothermal Technologies Program



PIX 07655, Joel Renner, INEEL

The Steamboat geothermal power plant (24 MW), originally built and now owned by ORMAT, in Steamboat Springs, Nevada.

GeoPowering the West Activities

Geothermal energy represents a major economic opportunity for the American West, an area characterized by a steadily increasing population that requires reliable sources of heat and power. GeoPowering the West is pursuing this opportunity by:

- Partnering with state energy officials
- Bringing together state and local stakeholders for state-sponsored geothermal working groups
- Working with utilities and rural electric cooperatives to promote use of geothermal power
- Promoting increased federal use of geothermal energy
- Helping American Indians identify and develop geothermal resources on tribal lands
- Sponsoring workshops and other educational events.

What Is GeoPowering the West?

The United States Department of Energy (DOE) GeoPowering the West (GPW) activities within the Geothermal Technologies Program increases awareness of how geothermal energy will enhance local economies and strengthen our nation's energy security while minimizing environmental impact.

Working in cooperative effort with the American geothermal industry, power producers and suppliers, industrial consumers, residential end-users, tribes, and federal, state, and local officials, GPW provides technical support, guidance, information, and assistance to states and local communities to explore and develop their own geothermal energy resources.



Pacific Gas and Electric Company (PG&E)

The Big Geysers (Unit 13) geothermal power plant (70 MW) in Lake County, California.

Electricity

Power is produced using expanding steam or very hot water from the underground reservoir to spin a conventional turbine-generator. Geothermal power plants operate at a high-capacity factor, typically over 90%, and are a proven, base load generation resource. Geothermal plants are among the cleanest sources of electric power available. With western United States demand for power growing rapidly, the need to develop geothermal power resources is essential. DOE is seeking to decrease the levelized cost of electricity from hydrothermal systems to less than 5 cents per kilowatt-hour, and has a vision of geothermal energy as the nation's environmentally preferred base load energy alternative.

Aquaculture, or fish farming, is one of the many uses of geothermal energy. These alligators in Colorado, growing in warm geothermal waters, consume waste products from nearby geothermally heated fish farms, and also provide meat and leather products.



PIX 13011, NREL, Robb Williamson

Low-temperature geothermal water provides inexpensive heat and reliable irrigation for this New Mexico greenhouse.

Geothermal Heat

Direct-use applications directly pipe hot water from geothermal resources to provide heat for industrial processes, crop drying, greenhouses, aquaculture, recreation, sidewalk snow-melting, and buildings. Geothermal district heating systems supply heat to multiple buildings through a network of pipes carrying the hot geothermal water.



PIX 05872, NREL, Warren Gretz