

GEOHERMAL ENERGY



CASES

FACT SHEET

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What is Geothermal Energy?

Geothermal energy refers to the heat released from below the earth's surface. When heat rises from deep beneath the surface of the earth and mixes with water, it generates hot water or even steam, which pushes its way above the surface of the earth. While humans—and other animals—have made use of geothermal for tens of thousands of years primarily at hot springs, it has been used to power turbines and generate electricity for over a century.

Readily accessible geothermal energy is distributed unevenly across the globe. In countries located on tectonic fault lines, particularly the United States, Indonesia, Kenya, the Philippines and Iceland, high heat is located closer to the surface of the earth. This means that geothermal energy can be accessed inexpensively and in abundance providing an affordable and reliable source of heat and power generation.

What is Geothermal Energy Used For?

As with most sources of renewable energy, including wind and biofuels, humans have used geothermal power for thousands of years. For most of history, thermal waters were used for bathing and heating, two applications that are still employed today.

Technological advancements in harnessing geothermal energy have expanded the use of underground reservoirs to provide heat to buildings and for use in the agricultural industry to heat greenhouses.

Geothermal energy comprises a small percentage of electricity production globally. [1] However, in countries where it is easily accessible, such as Iceland and Kenya, it comprises a large portion of electricity generation.

Geothermal and Renewable Energy

Geothermal is less developed than other forms of renewable energy. Limitations on the growth of this sector include high upfront costs for exploration and drilling wells, the dependence on specific geological attributes, and higher operational costs than wind and solar.

Where geothermal resources are successfully exploited, however, it provides several key benefits over other renewable energy sources. Geothermal wells provide constant energy and a geothermal reservoir can offer a long lifespan given proper maintenance and the ability to drill new wells into a reservoir when older wells lose their potency.

[1] EIA (2022), Geothermal explained: Use of geothermal energy, U.S. Energy Information Administration.