Geothermal Resources in Alaska

Alaska Division of Geological & Geophysical Surveys (DGGS)

WHAT IS GEOTHERMAL ENERGY?

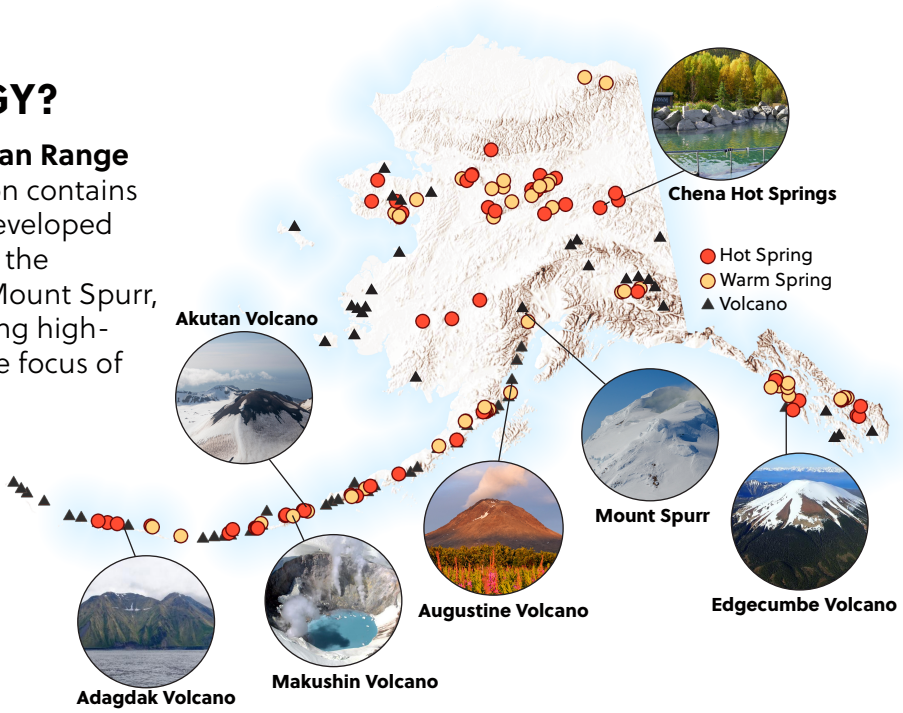
Geothermal energy is heat from Earth's interior that originated from the Earth's formation and continues to be generated today by radioactive decay. The internal heat travels to the surface by conduction or advection, the upward flow of magma or hot fluid.

Why geothermal now? Geothermal is a renewable source of energy that can provide reliable, around-the-clock heat and electricity with very low greenhouse gas emissions. Because the resource is available day and night and is not dependent on weather conditions, geothermal can complement other energy sources and contribute to a diverse and resilient energy portfolio. Although much of Alaska's geothermal potential remains only lightly explored, advances in geophysical methods and drilling technologies are improving our ability to identify and develop geothermal resources.

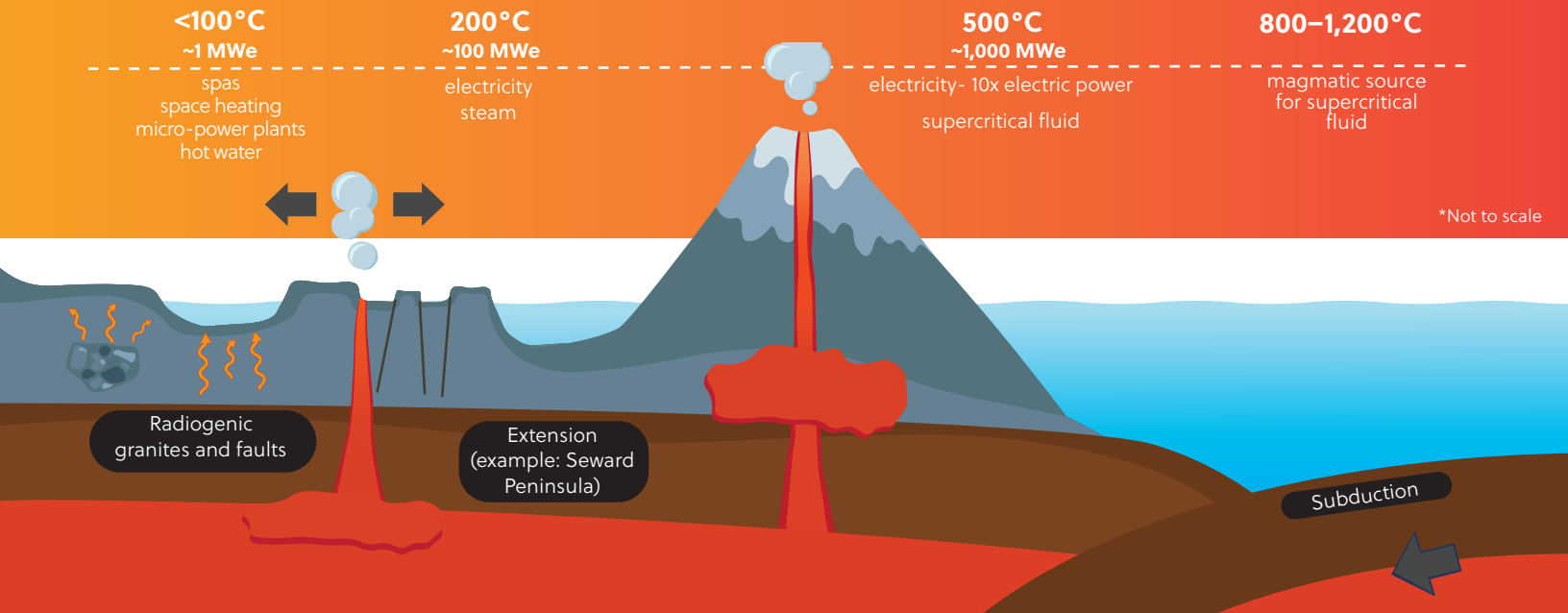
WHERE IS GEOTHERMAL ENERGY?

The hottest sources in Alaska are in the Aleutian Range extending southwest from Anchorage. This region contains one of the world's largest concentrations of undeveloped geothermal resources, leading some to describe the Aleutians as the "Prudhoe Bay of geothermal." Mount Spurr, Augustine, and Makushin volcanoes are promising high-temperature geothermal sites and have been the focus of recent exploration and evaluation.

Lower-temperature geothermal resources occur as hot springs across Interior, western and Southeast Alaska. Chena Hot Springs is Alaska's only developed geothermal power project and is home to the world's lowest temperature power plant, generating electricity from water at just 65°C (150°F).



USE DEPENDS ON TEMPERATURE



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DGGS GEOTHERMAL PROGRAM

Alaska's exceptional geothermal resource base has the potential to provide residents with reliable, affordable energy. Alaska's unique geologic setting also positions the state to become a national leader in geothermal energy development by advancing the use of next-generation technologies. DGGS helps realize this promise by providing the scientific foundation needed for exploration and informed resource development through:

- Collecting, interpreting, and publishing high-quality, publicly available geoscience data on Alaska's geothermal systems.
- Maintaining collaborative partnerships with state and federal agencies, universities, industry, and international researchers to advance geothermal science and share knowledge.
- Providing scientific expertise that helps reduce exploration risk and informs responsible geothermal resource development in Alaska.
- Evaluating emerging geothermal technologies and development concepts for Alaska's unique geologic setting, including innovative approaches for utilizing or exporting energy from remote regions.

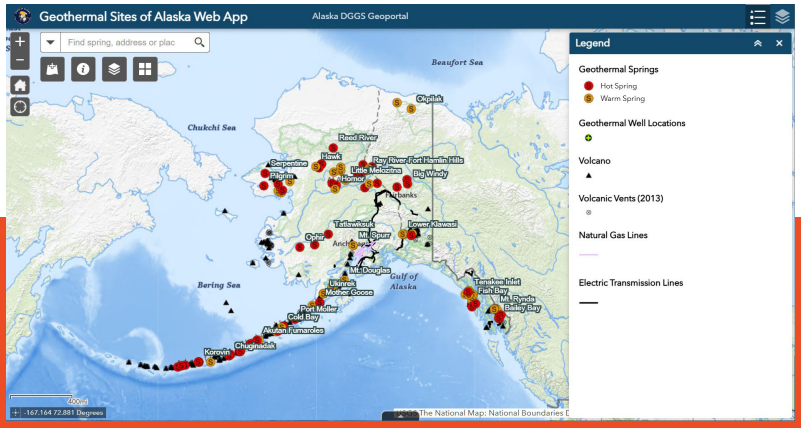
Alaska Geothermal Database

In cooperation with the National Geothermal Data System, DGGS is maintaining an Alaska geothermal database containing:

- Temperature and flow rates
- Direct use
- Aqueous spring chemistry
- Physical samples
- Volcanic vents
- Geothermal wells
- Borehole temperature data
- Geothermal references

These data are publicly available through an interactive web application of geothermal resources:

https://maps.dggs.alaska.gov/geothermal/



POTENTIAL BENEFITS TO ALASKA

Affordable and Reliable Energy

Alaska has some of the nation's highest energy costs and faces uncertain long-term energy supply. Where suitable resources exist, geothermal can provide reliable, locally produced heat and electricity.

Economic Development

Reliable, affordable energy helps attract new businesses, strengthen existing industries, and support long-term economic growth. Geothermal can reduce energy costs where suitable resources are available.

Environmental Benefits

Geothermal energy can reduce harmful emissions and improve air quality, with minimal land disturbance.

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For more information
https://dggs.alaska.gov/energy/geothermal.html

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