

## Geothermal Program

Geothermal energy can be used for electricity production as well as space or process heating applications. The process of electrical production is very similar to a traditional coal power plant, except the energy is supplied by the Earth's heat instead of the combustion of coal. In both cases, a relatively high temperature and high-pressure fluid is expanded across a turbine to provide power to a generator, producing electricity.

For a geothermal resource to be capable of economically-viable power production, a number of attributes must be present: 1) a heat source, 2) a reservoir with sufficient permeability and porosity, 3) sufficient heat conduction within the formation and 4) high enough fluid flow.

The Alaska Energy Authority's geothermal program supports projects for geothermal development for power generation, direct use, and heat pumps and assists in identifying potential resources.

**Current Status:** The geothermal program is currently administering one Renewable Energy Fund (REF) grant: geothermal exploration in Akutan.

### Program Highlights:

Alaska currently has one operational geothermal power plant at Chena Hot Springs. Resources in Hot Springs Bay Valley in Akutan and at Pilgrim Hot Springs north of Nome are being explored for power generation potential.

To date, four heat pump projects have been completed with Renewable Energy Grant Fund support: a seawater heat pump at the Alaska SeaLife Center in Seward, and ground source heat pumps at the Juneau Airport, the Juneau Dimond Park Aquatic Center, and the Seldovia House senior center. Two additional projects are currently underway and a demonstration project using a new type of heat pump that uses CO<sub>2</sub> as a working fluid has received an Emerging Energy Technology Fund award.



*Exploration drilling in Akutan*



*Heat pumps in the Alaska SeaLife Center*

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TO REDUCE THE COST  
OF ENERGY IN ALASKA**

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