GEOTHERMAL RESOURCE ASSESSMENT PROJECTS

A brief look at ACEP’s preliminary geothermal assessment projects around the state.

Project Background

The Alaska Center for Energy and Power (ACEP) has worked with multiple utilities, land owners, and communities to help quantify resources and assess options for geothermal development in several areas of the state. Geothermal energy is an ideal renewable resource where it is available. It can provide consistent, uninterruptable power (99% availability is typical), is based on commercially available technology, and can be used for space heating as well as electric power generation. Unfortunately, many resources are not located near population systems, and transmission can be cost-prohibitive.

ACEP has worked with stakeholders around the state to provide preliminary assessments of specific geothermal resources. The goal is to understand what is creating the elevated temperatures at the surface and determine a rough estimate of the generating potential of the resource to allow for informed decisions about further, more costly evaluation tools like drilling.

Alaska Heat Flow Map

Recently, ACEP assisted on a project to refine the heat flow map of the State of Alaska, in support of the Department of Natural Resources and Southern Methodist Universities’ Geothermal Laboratory. This is the first step in identifying possible blind geothermal systems, and determining whether Alaska could develop any enhanced, or man-made geothermal projects in areas of elevated heat flow. Existing data is sparse, and ACEP is collaborating to identify deeper holes throughout the state to obtain temperature measurements and improve the resolution of the geothermal gradient map.

Pilgrim Hot Springs

ACEP is currently working with landowners and the community of Nome to determine if the geothermal resource at Pilgrim Hot Springs could produce enough power to economically develop Alaska’s next geothermal power plant for the region. Partners include land
Since the first geothermal power project was installed at Chena Hot Springs in 2006, there has been renewed interest in exploring some of the geothermal resources near communities. ACEP has been working with stakeholders across the state to conduct preliminary assessments of the resources at Manley Hot Springs in Interior Alaska, Granite Mountain near Buckland, Division Hot Springs near Shagnuk and Tenakee Springs in the Southeast.

Basic water sampling, flow and temperature measurements were taken and geology explored to acquire a general idea of their potential and to determine if detailed analysis was warranted for possible development of the sites.

**Ground and Water Source Heat Pumps**

While not traditionally categorized as geothermal power, using the earth’s surface heat for space heating applications through ground and water-source heat pumps is of great interest to Alaskans and several have been installed around the state. ACEP, in conjunction with Cold Climate Housing Research Center (CCHRC) conducted a preliminary assessment of current installations in the state as well as the economic viability of these systems based on several community-specific factors. CCHRC is continuing that work with more detailed assessments in the Interior and Southeast Alaska.

ACEP has also conducted an assessment of the Seward SeaLife Center’s seawater heat pump system for the Denali Commission’s Emerging Energy Technology Grant Fund.