

NEVADA BUREAU OF MINES AND GEOLOGY
UNIVERSITY OF NEVADA, RENO

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ENERGY TALKS OMIT VITAL GEOTHERMAL POTENTIAL

Recent national discussions on the energy crisis have failed to underscore, or even mention, the prominent role that geothermal energy can play in helping to solve the nation's critical dependence on petroleum, according to a spokesman at the Nevada Bureau of Mines and Geology, University of Nevada, Reno.

The Bureau is actively engaged in geothermal research in Nevada, as is the U. S. Geological Survey and private industry.

Dennis Trexler, Bureau research associate, who is studying Nevada's geothermal potential, points out that geothermal energy is already being used in many areas in the United States, where geothermal water and steam with temperatures above 400°F are being employed instead of fuel oil to generate electricity. In addition, he says, even moderate-temperature geothermal water can be used instead of fuel oil and natural gas for direct heat applications, such as industrial processing and space heating.

The U. S. Geological Survey estimates that about 2,400 "quads" of energy exist in geothermal systems in the U. S. A quad is a quadrillion (one, followed by 15 zeros) BTU's (British Thermal Unit, the standard unit for measuring heat capacity). Present yearly consumption in the U. S. is about 80 quads. This estimate means that 95,000 to 150,000 megawatts of electricity could be produced from geothermal water and at least 230 to 350 quads of energy for direct heat application may be available.

At the Geysers area of California, 608 megawatts of electricity are produced from natural steam. This is more than enough to meet the electricity needs for a city the size of San Francisco.

Klamath Falls, Oregon; Boise, Idaho; and Reno, Nevada, are three cities using geothermal waters for direct heat applications.

Nevada probably has the highest potential for geothermal electrical development of all the States. Twenty-nine areas in Nevada have been designated as KGRA's (Known Geothermal Resource Areas). Current exploration is being concentrated in 12 of these areas in response to the industry-coupled program of U. S. Department of Energy (DOE). Several Nevada areas that show promise as sources of geothermal electrical production are Beowawe, Brady-Hazen, Desert Peak, Leach, Steamboat Springs, Rye Patch, and Dixie Valley. Many other areas may yet be discovered.

In connection with industrial process heat obtained from geothermal resources, the first geothermal vegetable dehydration plant was completed at Brady's Hot Spring, 60 miles northeast of Reno, in November of 1978. Other process applications of geothermal heat could include grain drying, cattle raising, and various industrial or agriculture activities.

Space heating is one of the most important and natural uses of geothermal energy. If the chemical quality of the geothermal water permits, it can be used directly in radiators. If the chemistry causes scaling or corrosion, heat exchangers can be placed in the geothermal well and the heat can be pumped to the surface as heated water.

In Caliente, Nevada, a project funded by the U. S. Department of Energy has drilled three wells to be used for space heating at the Agua Caliente trailer park. Stimulated by this incentive, the Caliente City Council is seeking funds for geothermal heating of public buildings within the city.

Chilton Engineering, in cooperation with DOE, has completed a feasibility study of geothermal resources in and near Elko, Nevada. Presently the firm is proceeding with a direct utilization demonstration project in the city.

The Nevada Bureau of Mines and Geology is currently completing a statewide geothermal resource evaluation. The study is being funded by the U. S. Department of Energy and will provide a map showing areas of possible direct (non-electric) utilization. In May, the Bureau will publish a 200-page report on Nevada's geothermal resources.