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DOE/ID/12019-1

Nevada Geothermal Commercialization Program

Semi-Annual Report
January — June 1979

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NEVADA GEOTHERMAL COMMERCIALIZATION PLANNING

SEMI-ANNUAL PROGRESS REPORT

January 1, 1979 - June 30, 1979

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Work performed under Contract No. DE-FC07-79ID12019

**U.S. Department of Energy
Idaho Operations Office**

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Mid-Term Progress Report

for the

State of Nevada

Geothermal Commercialization Planning Project

1.0 Introduction

1.1 Purpose of Project

The purpose of Nevada's participation in The Geothermal Commercialization Planning Project (GCPP) is to undertake those planning and outreach activities that are necessary to stimulate the development and utilization of geothermal resources within the State of Nevada.

1.2 Objectives

The objectives of the Nevada Department of Energy (NDOE) are to identify geothermal resources within Nevada; evaluate the potential uses of those resources; project the likely time frame for development of said resources; identify and remove unreasonable barriers to geothermal development in Nevada; and to provide direct assistance to those entities that are interested in developing geothermal resources.

1.3 Technical Approach and Team Members

During the first year of the GCPP, a private consultant was utilized to facilitate Nevada's participation in the project. The NDOE elected to implement the second year of the GCPP by developing and utilizing in-house personnel. Because of the aforesaid operational changes, the NDOE has placed heavy emphasis on hiring and bringing new state team members up

to speed and in initiating a variety of organizational, data collection, and institutional related activities. As previously indicated, the NDOE is in the process of developing a professional staff to perform geothermal planning and outreach functions. At the present time GCPP functions are being performed by two staff members, an attorney and an engineer, on a part-time basis with project oversight provided by the Director of the NDOE. The NDOE hired a professional planner who will be assigned to work on this project on a full-time basis. In addition public service interns have and will continue to be used on an ad hoc basis to perform selected GCPP activities.

1.4 Benefits of Project to State and DOE

The GCPP program has provided the stimulus for Nevada to develop a professional geothermal staff and to collect and disseminate geothermal information and to institute programs that will promote commercialization of Nevada's geothermal resources. Nevada's program will assist DOE by providing information concerning Nevada's resources and the contribution that those resources can make to the national energy balance.

2.0 Summary of State Project Tasks

Task 1: Area Scenario Development Plan

The areas to be investigated have been identified. See Exhibit 1. Furthermore, activities have been initiated to collect the information that is necessary to complete two area scenario development plans and the

New Mexico Energy Institute (NMEI) market penetration analysis.
The aforesaid data collection effort is about 50% completed.

Task 2: Site Specific Development Plans

The NDOE has identified several possible locations, including the City of Caliente, Crescent Valley and the Damonte Ranch for site specific analyses.

Task 3: Time Phased ~~Project~~ Plans

To date the NDOE has not identified any time phased project plans, but consideration is being given to Brady or Elko Springs.

Task 4: Institutional Analysis

The NDOE suggested several legislative measures to the 1979 session of the Nevada Legislature and has finished approximately 75% of the work necessary to complete Nevada's institutional analysis.

Task 5: Outreach

A variety of low level outreach activities have been undertaken including radio and television appearances, preparation of newspaper articles, and provision of hands-on technical assistance to interested parties.

3.0 Specific Task Descriptions

3.1 Geothermal Prospect Identification

This is basically the information listed in Table 3.1 of the DOE Hydrothermal Commercialization Baseline for the State of Nevada. At the present time that information is being updated with information obtained from "Assessment of Low to Moderate Temperature Geothermal Resources of Nevada", by D. T. Trexler, T. Flynn and B. A. Koeing, June 1979. It will be further

updated with information supplied in a report by G. Martin Booth III to Region IX U.S. DOE. The Booth report will provide information and is similar to the work being done under this contract.

3.2 Area Development Plans

3.2.1 State geothermal planning areas:

The state has been divided into eleven (11) areas. See Exhibit 1. The areas are drawn along county lines and were selected on the basis of resources, population, financial and economic impact factors. The area development plans in the order that they will be completed are as follows:

- a. Washoe County
- b. Carson County
- c. Four County area of Douglas, Lyon, Churchill and Storey Counties
- d. Lincoln County
- e. Clark County
- f. Humboldt and Pershing County
- g. Elko County

The first two ADP's, Washoe County and Carson County are well under way. Geothermal site resource data have been gathered and are being reviewed and updated. Site-city pairs together with surface temperatures and subsurface temperatures have been gathered.

The only real gap in the geothermal site resource data package is the depth, volume and energy content of the specific sites.

Population data for cities and counties is now being prepared by the office of the State Planning Coordinator. Included with this data will be projected growth rates for cities and counties.

Energy consumption data has been secured from the utility companies that serve both Washoe and Carson counties and is now being reduced to a meaningful format. Other types of data have been acquired. A meeting with NMEI in late October will be held to review this data and any additional requirements.

3.3 Site Specific Development Plans

Three site specific locations have been selected as possibilities, they are:

1. City of Caliente: Caliente seems to have a lot of potential for geothermal development. At present it has a 50-space trailer park that was converted to geothermal heat with an appropriate technology grant in the summer of 1978. Another appropriate technology grant has been awarded to the Grover C. Dils Medical Center to convert to geothermal heat. This work is expected to be completed in the Spring of 1980. The City of Caliente is interested in the feasibility of installing a district heating system or utilizing available resources to attract new industry. They have already submitted an unsolicited proposal to

U.S. DOE for \$75,000 to do geophysical, economic and engineering analysis work. The system if it were to become a reality would serve approximately 200 plus existing customers and new industry that might be attracted.

2. Crescent Valley: The Half Circle Ranch Development Corporation of Salt Lake City, Utah, is interested in developing an alcohol production facility on the Half Circle Ranch in Crescent Valley, Nevada. The Half Circle Ranch is located in Eureka County in Crescent Valley between the towns of Beowawe and Crescent Valley. The western edge of the development borders near Lander County. The combined population of these two counties in the 1970 census was approximately 3600. Both Beowawe and Crescent Valley have populations of 100 or less.

The project will use geothermal energy in the production of alcohol, process feed stock, livestock food supplies, and transportable energy. The project will be developed in two phases. Phase I will include geothermal resource confirmation, production well development, construction of an ethanol production plant, and the construction of a heated cattle/hog feed lot facilities. The waste grain mash from the alcohol plant will provide approximately 60% of the animal feed and, in addition, the geothermal water will be utilized in a bottoming cycle through the feed lot slab heating system. Waste from the feed lot will be used in farm field development and upkeep. Phase II

encompasses the development of an industrial park from a developer/utility standpoint. The operating facilities, not including those in the Phase II industrial park, will employ approximately 60 people directly. In addition many support people drawn from within the region will be utilized in fuel and food distribution, design, construction, equipment sales and maintenance, and secondary reprocessing. Employment characteristics for the development will include technical management, farm labor, plant operators, maintenance technicians, and office services.

3. Damonte Ranch: The Nevada Central Holding Company is planning to develop the Damonte Ranch in the southeast Truckee Meadows. The ranch consists of 2,200 acres that are located in a geothermally active area. The proposed development will consist of 6,000 dwelling units and support commercial and public facilities. It is a planned community with good potential for geothermal development. The Damonte Ranch is located in the Moana geothermal area. There are warm springs on the property. Because of the type of development there is a good potential for district heating.

3.4 Time Phased Project Plans

The NDOE is reviewing the feasibility for doing time phased project plans at Brady or Elko Springs.

3.5 No data at this time.

3.6 Institutional Analysis

3.6.1 Overview of state laws and regulations:

Due to the fact that Nevada's legislature meets

biannually and was in session during the first two quarters of 1979, the NDOE placed considerable emphasis on stimulating legislative action during that period of time. A presentation was made to the Senate Commerce and Labor Committee in which the NDOE suggested that the legislature consider the following legislative proposals:

- a. Authorize general improvement districts to provide district space heating services.
- b. Exempt non-producing leasehold interests from property taxation.
- c. Require utility companies to justify the non-use of geothermal as an electrical generation source when filling applications to construct new electrical generation facilities.
- d. Authorize utilities to include "construction work in progress" in rate base on an incremental basis during the construction of geothermal electrical generation facilities.
- e. Statutorily define geothermal resources and require the State Water Engineer and the State Environmental Commission to initiate rulemaking proceedings to identify clearly procedures regarding the appropriation and use of geothermal resources.
- f. Create a geothermal resource development and demonstration fund for direct thermal applications.

- g. Provide funding to activate a Division of Research and Development within NDOE to stimulate use of Nevada's energy resources.
- h. Memorialize Congress to pass a geothermal omnibus bill and to appropriate adequate funding for geothermal demonstration and resource assessment projects.
- i. Expand existing property tax allowance to include commercial as well as residential geothermal space and water heating applications.
- j. Amend the Nevada Constitution to allow tax incentives to promote renewable resource applications.

As a result of the aforesaid presentation the following bills were introduced:

SB 506 - Authorizes general improvement districts to provide space heating; and providing other matters properly relating thereto.

SB 505 - Adds requirement of consideration of geothermal resources to Utility Environment Protection Act.

SB 525 - Increases types of buildings for which allowance against property tax is granted for systems of heating or cooling using renewable sources of energy.

SJR 19 - Proposes to amend section 1 of article 10 of the Nevada constitution by permitting an

exemption from property tax for the conservation of energy by using nonfossil resources.

SJR 23 - Memorializes Congress to legislate on geothermal resources and to appropriate money for research and demonstration.

SCR 35 - Directs study of inclusion of cost of developing geothermal energy in rate base of utility.

AB 144 - Provide for the exemption from property tax of leases for geothermal development; and providing other matters properly relating thereto.

Based upon the NDOE's recommendations and subsequent testimony and hearings the Legislature enacted the following bills:

- a. Authorized General Improvement Districts to provide district space heating services. See Exhibit 2
- b. Exempted non-producing geothermal leasehold interests from property taxation. See Exhibit 3
- c. Memorialized Congress to implement a geothermal omnibus bill and to increase the level of geothermal funding. See Exhibit 4
- d. Authorized NDOE's participation in the GCPP and provide funding to activate the NDOE's Division of Research and Development.

Subsequent to the close of the 1979 session, the Interim Finance Committee authorized the creation of a special study group that will work in conjunction with the National Conference of State Legislatures and the NDOE to provide policy and legislative

suggestions to the legislature when it meets in 1981.

The NDOE was also involved in encouraging the Western Governors Conference to take an active role in promoting development of geothermal resources. Specifically the NDOE prepare two resolutions regarding geothermal and geothermal related development that Governor List introduced at the WGC. Both resolutions were adopted by the WGC and forwarded to U.S.DOE

The NDOE executed a contract with the Bureau of Governmental Research at the University of Nevada to perform an institutional analysis of statutes, regulations, judicial decisions and other institutional factors that affect the development of geothermal development. The analysis will be completed by October 15, 1979.

3.7 Public Outreach Program

3.7.1 Outreach Mechanisms

a. Existing

At the present time a one-on-one outreach approach is being used. The NDOE has participated on various radio and television programs discussing geothermal in Nevada and indicating the individuals can obtain information from the NDOE and from the Nevada Bureau of Mines and Geology. Articles have been published in the agencies newsletter and in newspapers throughout the state. Local governmental entities have been contacted through the NSERAB and through the

League of Cities to outline NDOE's interest in helping promote geothermal resource development.

In the future, the NDOE will conduct orientation seminars and workshops, continue to provide one-on-one technical assistance, publish general brochures regarding Nevada's resources, etc.

3.7.2 Summary Listings of Contacts and Results

Following hereinafter is a summary of some of the contacts representative of geothermal activity within Nevada.

CONTACT

Industry

Private Corporate Entity

Private Corporate Entity

Private Corporate Entity

Agribusiness

Half Circle Ranch
Development Corporation

Winnemucca Chamber of Commerce

Private Corporate Entity

Private Corporate Entity

APPLICATION

Electrical generation
at Darrows Hot Springs

Space and water heating
for proposed plastic plant

Space, water heating
and electrical generation
for manufacturing plant

Production of ethanol
alcohol and cattlefeed

Production of alcohol fuels

Production of alcohol and
raising vegetables in
greenhouses

Raising prawns

CONTACT

APPLICATION

Individuals

Approximately 30-40 individuals
have contacted the NDOE

Space heating, water
heating, commercial uses

State Government

The NDOE is working with the State Department of Economic Development
in an effort to use Nevada's geothermal resources to attract new industry.

Local Government

City of Caliente

Space heating for
community and other
commercial applications

City of Gabbs

Space and water heating
for local fire station

Washoe County

Space and water heating
of swimming pools and
selected governmental
buildings

3.7.3 Overall Prospect for Future Geothermal Activity

No qualitative estimate is available at this time.

FIGURE 1. Hot springs and geothermal wells in Nevada. Numbers correspond to those of table 1, which gives drilling detail.

EXHIBIT 2

Senate Bill No. 506—Committee on Commerce and Labor

CHAPTER.....

AN ACT relating to general improvement districts; authorizing general improvement districts to provide space heating; and providing other matters properly relating thereto.

The People of the State of Nevada, represented in Senate and Assembly, do enact as follows:

SECTION 1. NRS 318.116 is hereby amended to read as follows:

318.116 Any one, all or any combination of the following basic powers may be granted to a district in proceedings for its organization, or its reorganization pursuant to NRS 318.077 and all provisions in this chapter supplemental thereto, or as may be otherwise provided by law:

1. Furnishing electric light and power, as provided in NRS 318.117;
2. Extermination and abatement of mosquitoes, flies, other insects, rats, and liver fluke or fasciola hepatica, as provided in NRS 318.118;
3. Furnishing public cemetery facilities or services, as provided in NRS 318.119;
4. Furnishing swimming pool facilities, as provided in NRS 318.1191;
5. Furnishing television facilities, as provided in NRS 318.1192;
6. Furnishing street and alley facilities, as provided in NRS 318.120;
7. Furnishing curb, gutter and sidewalk facilities, as provided in NRS 318.125;
8. Furnishing sidewalk facilities, as provided in NRS 318.130;
9. Furnishing storm drainage facilities, as provided in NRS 318.135;
10. Furnishing sanitary sewer facilities, as provided in NRS 318.140;
11. Furnishing street lighting facilities, as provided in NRS 318.141;
12. Furnishing garbage and refuse collection and disposal facilities, as provided in NRS 318.142;
13. Furnishing recreation facilities, as provided in NRS 318.143;
14. Furnishing water facilities, as provided in NRS 318.144;
15. Furnishing fencing facilities, as provided in NRS 318.1195;

[and]

16. Furnishing fire protection facilities, as provided in NRS 318.1181 [.] ; and

17. *Furnishing space heating as provided in section 2 of this act.*

SEC. 2. Chapter 318 of NRS is hereby amended by adding thereto a new section which shall read as follows:

A board of trustees may develop natural sources of energy for and supply the energy for space heating.

EXHIBIT 3

Assembly Bill No. 144—Committee on Taxation

CHAPTER.....

AN ACT relating to property tax; providing for the exemption from property tax of leases for geothermal development; and providing other matters properly relating thereto.

The People of the State of Nevada, represented in Senate and Assembly, do enact as follows:

SECTION 1. NRS 361.157 is hereby amended to read as follows:

361.157 1. When any real estate which for any reason is exempt from taxation is leased, loaned or otherwise made available to and used by a natural person, association, partnership or corporation in connection with a business conducted for profit, it is subject to taxation in the same amount and to the same extent as though the lessee or user were the owner of the real estate.

2. When any real estate which is exempt from taxation by reason of its public ownership is used for the generation of electric power, the value of any right to receive electric power directly from the exempt real estate by a natural person, association, partnership or corporation or by a political subdivision of any other state is taxable as though the holder of that right were the owner of the real estate in the same proportion which his right bears to the total of all rights to receive electric power generated through the use of that real estate.

3. Subsection 1 does not apply to:

(a) Property located upon or within the limits of a public airport, park, market, fairground or upon similar property which is available to the use of the general public;

(b) Federal property for which payments are made in lieu of taxes in amounts equivalent to taxes which might otherwise be lawfully assessed;

(c) Property of any state-supported educational institution;

(d) Property leased or otherwise made available to and used by a [private individual,] *natural person, private association, private corporation, municipal corporation, quasi-municipal corporation or a political subdivision under the provisions of the Taylor Grazing Act or by the United States Forest Service or the Bureau of Reclamation of the United States Department of the Interior;*

(e) Property of any Indian or of any Indian tribe, band or community which is held in trust by the United States or subject to a restriction against alienation by the United States; [or]

(f) Vending stand locations and facilities operated by blind persons under the auspices of the bureau of services to the blind of the rehabilitation division of the department of human resources, regardless of whether the property is owned by the federal, state or a local government [.] ; or

(g) *Leases held by a natural person, corporation, association, municipal corporation, quasi-municipal corporation or political subdivision for development of geothermal resources, but only for resources which have not been put into commercial production.*

4. Taxes shall be assessed to lessees or users of exempt real estate and collected in the same manner as taxes assessed to owners of other real estate, except that taxes due under this section do not become a lien against the property. When due, such taxes constitute a debt due from the lessee or user to the county for which the taxes were assessed and if unpaid are recoverable by the county in the proper court of the county.

SEC. 2. The legislature finds that geothermal energy is distinct from fuels found underground in that no large, well-organized effort has been made to locate and exploit it, and that while it may become an important source of energy, exploration for and exploitation of geothermal energy is an infant industry.

EXHIBIT 4

Senate Joint Resolution No. 23—Committee on Commerce and Labor

FILE NUMBER.....

SENATE JOINT RESOLUTION—Memorializing Congress to legislate on geothermal resources and to appropriate money for research and demonstration.

WHEREAS, It is essential that the United States reduce its dependence on foreign oil and focus its efforts upon the development of the plentiful and renewable sources of energy available in this country; and

WHEREAS, The State of Nevada has potentially great reserves of such energy in the form of geothermal resources; now, therefore, be it

Resolved by the Senate and Assembly of the State of Nevada, jointly, That the legislature of the State of Nevada hereby urges the Congress of the United States to pass legislation on geothermal resources and appropriate the money necessary for research and demonstration of the use of geothermal resources; and be it further

Resolved, That copies of this resolution be transmitted forthwith by the legislative counsel to the President of the United States, the Vice President as presiding officer of the Senate, the Speaker of the House of Representatives and the members of the Nevada congressional delegation.

19-79

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