

Commercialization of Geothermal Energy in Hawaii

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Workshop on Geothermal Energy  
of the  
The Hawaii State Legislature  
and  
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By  
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It is a pleasure for the Department of Planning and Economic Development (DPED) to make a presentation to this Workshop. The DPED made a statement on the status of geothermal energy in Hawaii at the August 2, 1978, Workshop also sponsored by the National Conference of State Legislatures and the Hawaii State Legislature. We reviewed the draft report of the Workshop and testified on bills introduced in the 1979 Legislature on geothermal energy, many of which were based on the 1978 Geothermal Workshop recommendations.

I would like to review the activities on geothermal energy in the State since the 1978 Geothermal Workshop.

In October of 1978, I appointed a State Geothermal Advisory Committee to monitor geothermal programs and provide advice on State actions to encourage the rapid development of Hawaii's geothermal resources. The Committee, chaired by Eugene M. Grabbe of the DPED State Energy Office, includes members from industry, business, university, State agencies, native Hawaiian groups, and private individuals. A membership list of the Committee which has met on a monthly basis is attached as Exhibit A. Minutes of the Committee meetings have been sent to the National Conference of State Legislatures' geothermal project staff.

The Committee unanimously agreed at an early meeting that four high priority areas for action were:

- A. Resource and Technology Assessment
- B. Market Assessment and Planning
- C. Environmental, Economic, Social, Institutional and Land Use Barriers
- D. Possible Federal, State and Local Actions

The Committee's consensus was that the four items were high priority and that all should receive immediate attention with the effort on each item varying according to the need.

A Subcommittee to examine incentives and legislation was appointed and headed by Lloyd Jones. The members of the Legislative Subcommittee are listed as part of Exhibit A. Those recommendations of the Subcommittee unanimously endorsed by the full Committee at its August meeting were submitted to the Governor's Advisory Committee on Alternate Energy Development, chaired by Dean John Shupe for review and consideration. A copy of the Subcommittee's recommendations is attached as Exhibit B. They include both legislative and administrative actions. DPED has requested the opinion of the State Attorney General's Office concerning State provided insurance for (a) risk from volcanic, seismic and other "Acts of God" and (b) early reservoir depletion. Dean Shupe's Committee has reviewed the Geothermal Subcommittee's findings and will make its recommendations on legislative and administrative actions.

Four proposals for planning for geothermal commercialization were submitted to the Department of Energy (DOE) by the Dillingham Corporation, the County of Hawaii, the Puna Hui Ohana and DPED during 1978. The Geothermal Advisory Committee endorsed all of these proposals and three of them were funded by DOE. The Dillingham Corporation has received a grant of \$125,000, matched by \$59,000 industry funding to investigate the marketing and engineering aspects of an Industrial Park at Puna for non-electric uses of geothermal energy. This project has just begun with Jim Moreau as the Project Manager.

The DPED proposal for planning for geothermal commercialization and Puna Hui Ohana's proposal for a native Hawaiian social impact study were combined by DOE in a contract for \$145,000 to DPED. Approximately one-third of the funds will go to the Puna Hui Ohana subcontract with Everett Kinney as Project Manager. Notice of the contract award was received last week, and the project will be under the guidance of Eugene M. Grabbe, the Principal Investigator. The Geothermal Advisory Committee will act in an advisory capacity for the project.

Other geothermal activities in the State of interest to the Committee will be reviewed briefly here:

1. Geothermal Wellhead Generator Project. This project is managed by the Research Corporation of the University of Hawaii (RCUH) for the HGP-A/Development Group consisting of DPED, the County of Hawaii, and the University of Hawaii. The Hawaiian Electric Company and the Hawaii Electric Light Company have supported the project by assigning a full-time senior engineer to the project. The Puna site was dedicated and blessed on May 1, 1979. The project has been delayed to re-cement the upper part of the well casing. It is hoped that this procedure will improve the performance of the well and that on-line electric power from the well will begin late in 1980. Hawaii will be the second State to have on-line electric power.

2. Hawaii Natural Energy Institute (HNEI) Studies. HNEI is assisting the Geothermal Wellhead Generator Program in reservoir assessment and is also engaged in related geothermal systems analysis and studies.

3. Private Drilling. The Geothermal Exploration and Development Corporation (GEDCO) drilled two deep exploratory wells in the Puuwaawaa area on the flank of the Hualalai volcano on the Big Island. Drilled at an elevation of about 2,000 ft., neither well produced a useful resource. GEDCO has obtained an extension of its permit to drill six exploratory wells at Opihikao several miles from the Puna well site. The company hopes to obtain financing to begin drilling in the near future.

4. Other Developers. Several companies have had serious negotiations with the Department of Energy for Geothermal Loan Guarantees to drill production wells in the Puna area for geothermal electric generating plants.

5. Geothermal Assessment. The Hawaii Institute of Geophysics has been carrying out geophysical studies of potential geothermal sites under contract with DOE and has published a report on temperatures and chemical composition of water from wells in Hawaii, as indicators of geothermal resources.

6. Puna Sugar Company Study. The company has issued a final report on the use of direct geothermal heat in the processing of sugar cane. The results show that the application would be cost-effective provided that the distance of transmission of hot water and/or steam was not too great.

7. Federal Geothermal Legislation. Several bills are aimed at encouraging geothermal development through forgiveness of cost of non-producing exploratory wells under the loan guarantee program, risk insurance, etc. A DPED representative attended a meeting of Western State representatives, DOE personnel and U.S. Senate staff to review the two pending bills. After a one-day workshop, recommendations were made on the best features of each bill, plus additional recommendations. The results were forwarded to the Senate Energy Committee staff. No recent action has been taken on these bills.

8. Planning for New Markets. DPED under separate programs is assessing the feasibility and impact of siting energy intensive metals refining industries in Hawaii. In particular, the extraction of nickel, copper, cobalt and manganese from manganese nodules is being considered in an ongoing program. The development of substantial geothermal power on the Big Island would enhance the possibility that Hawaii County could become the site of a major manganese nodule processing industry. Two workshops jointly sponsored by DPED and NOAA were held in Honolulu (May) and Hilo (August) to review technical, environmental and social impacts of a manganese processing industry in Hawaii. Copies of the Puna Sugar Company's final report on the use of geothermal heat in sugar processing have been sent to the key companies interested in manganese nodule processing to illustrate the geothermal potential.

9. Future Geothermal Development Programs. Many of the projects and programs described above are on-going and related to economic development. DPED will continue to work in cooperation with industry, HNEI, other State government and University agencies, the Counties and Federal agencies on current programs and future opportunities as they arise.

In closing I would like to express the appreciation of the State to the geothermal project staff of the National Conference of State Legislatures for their work on behalf of Hawaii. It is our firm expectation that incentives will assist geothermal development in Hawaii and that the 1980 Hawaii State Legislature will pass appropriate measures to meet the needs.