

GEOTHERMAL PROGRAM PLANNING WORKSHOP

DISCUSSION PAPER

November 19, 1990

TOPIC: GEOTHERMAL/CABLE CONSORTIUM SELECTION

Background

The HECO-led process to select a geothermal/cable consortium and to negotiate a contract by the end of 1990 has been significantly delayed, causing slippage in the drive to reduce the State's dependence on oil and fossil fuels for electricity generation.

The consortia ranked first and second best qualified to undertake the project have both had managing/major partners who have withdrawn or have indicated they may withdraw.

Discussion

An update is needed from HECO with regard to what steps are being taken to select a qualified consortia to pursue the project. Slippage in the selection process is causing problems for the State, as follows:

- * Without a consortium there is no clear definition of the financial support that may be required of the State. That definition is needed so that appropriate legislation or budget requests can be submitted during the 1991 session of the Sixteenth Legislature. Since significant new legislation and budget requests might be required, failure to act now could delay legislative considerations for the project until the Seventeenth Legislature, in 1993

- * Without a consortium, any State strategy developed now for a geothermal resource verification and characterization program to stimulate and complement private efforts, will, at best be tentative. It is important that the consortium be selected soon so that it can participate in devising a regional exploration strategy.

- * A framework is in place for a consolidated geothermal/cable permitting process. Valuable momentum will be lost if a consortium is not in place soon to initiate the permit application.

Consideration should be given to convening a meeting of the RFP Steering Committee in the near future to review with HECO the status of consortium selection and to suggest ways to finalize the process.

GOL:consorti.doc

GEOTHERMAL PROGRAM PLANNING WORKSHOP

DISCUSSION PAPER

November 19, 1990

TOPIC: PUBLIC ENHANCEMENT OF PROJECT FINANCES/ECONOMICS

Issue:

Should the State enhance the financing from public sources and/or offering incentives to improve the economics of the large-scale geothermal/inter-island cable project, if enhancing is needed?

Status/Background:

Prior to the Persian Gulf crisis which escalated oil prices, the international consortia that responded to HECO's RFP for the large scale geothermal/inter-island cable project indicated that the project was, at best, marginally economic. The consortia indicated that the cable system, which adds over \$500 million (1989 \$), was the reason for the questionable economics. The consortia also indicated that, although the federal and state-funded Hawaii Deep Water Cable Program had demonstrated the technical feasibility of the cable system, the finance community would still view this element of the project as one with considerable risk. The consortia almost unanimously indicated that some degree of State participation would be necessary.

b:\PROJFIN

GEOTHERMAL PROGRAM PLANNING WORKSHOP

DISCUSSION PAPER

November 19, 1990

TOPIC: GEOTHERMAL OUTREACH PROGRAM

Question

Has the geothermal program been effectively presented to Hawaii's residents, particularly those who may be most affected?

Background

Prior to about 1988, the State Government and geothermal developers provided, through the Geothermal Advisory Committee and frequent seminars, regular forums for reviewing the status and presenting future plans for the program. More importantly, they provided an opportunity for concerned residents to ask questions and to discuss issues. There was an effort by DBED and the developers to talk with, rather than at, the concerned residents. To be sure, some residents totally opposed geothermal, but many others had concerns and wanted them addressed. A few of the concerned but not opposed residents wanted to be part of the decision-making process. In some cases the extent to which they wanted to be part of decision-making was not practicable, and in some cases it seemed they wanted authority without responsibility.

An effort was made in 1987/88 to have the County Planning Department or Research and Development Department sponsor the Geothermal Advisory Committee, because some County residents and administration officials felt the Committee was too oriented toward Oahu interests (even though DBED sponsored attendance by community representatives, held open meetings, and mailed minutes and meeting notices to anyone who wanted to be on the mailing list). The County administration was less than enthusiastic about sponsoring the committee, while the developers viewed the committee meetings as a "can lose, can't win" situation for them because some community people would give developer remarks out of context to the media. As a result of problems such as these the GAC became inactive.

A 1988/89 mediated "roundtable", involving representatives of the Puna Community Council, Pele Defense Fund, and other environmental groups, was relatively successful in addressing issues but was suspended for basically two reasons: (1) the community wanted to discuss alternatives to geothermal; and (2) all the geothermal issues had been discussed (but not always resolved). Factors contributing to the failure of the roundtable were: (1) lack of regular follow-up on recommended actions; (2) failure of

Determine if present DBED Hilo staff has capability to conduct outreach with Puna residents. If not, consider augmenting the staff at least temporarily.

DLNR, DBED, and perhaps the County Administration might consider developing a regular periodic mediated forum, like the roundtable, to discuss issues with Puna residents and environmental groups not intractably opposed to any geothermal development.

DLNR, DOH, and DBED might brief the new County Administration as soon as practicable. A briefing could also be held with the County Council.

DLNR, DOH and DBED might brief the Senate and, separately, House and Senate Energy Committees. Consider briefings to majority policy committees and/or House/Senate leadership.

DBED visit Hawaii delegation/staffs in Washington early 1991.

DBED aggressively set up speakers bureau and seek out opportunities to address business groups and service organizations such as Rotary Clubs.

DBED have consultant design and fabricate a "static" display that can be moved between islands and used at shopping malls, fairs, etc. Although basically static, design and build capability for interactive components, such as a computerized geothermal data base.

At Thursday Geothermal Information Task Force meeting, DBED ask Pro-Geothermal Alliance to initiate, with other renewable energy proponents (HERS, a responsible hydro developer, AMFAC Energy, a wind developer) to develop a renewable energy/environmental "coalition" with appropriate environmental groups such as Sierra Club, Natural Resources Defense Council, Greenpeace Hawaii, and Thousand Friends.

GOL:outreach.mem

GEOHERMAL PROGRAM PLANNING WORKSHOP

DISCUSSION PAPER

November 19, 1990

TOPIC: GEOHERMAL MONITORING AND ENFORCEMENT

Major Premise

There is a need to coordinate, particularly in the field, monitoring and enforcement of geothermal activities to ensure compliance with regulations in a way which avoids duplication of effort on the part of responsible agencies and waste of agency resources.

Background

The three major regulating agencies for geothermal are DLNR, DOH, and the County Planning Department.

During the 1990s there is likely to be concurrent geothermal activity at more than one site.

Somewhat different personnel skills and equipment are required for each project phase: exploration, construction, and operations.

Geology, engineering (mechanical/civil/chemical), archaeology, biology, and pollution control are the primary disciplines requiring expertise among regulators. Except for engineering expertise in their public works departments, the County may not have specialists in these fields or related equipment in-house. Expertise in these areas is available in the Honolulu offices of DLNR or DOH.

Discussion

One way to avoid or reduce interagency turf problems is to involve personnel from the various agencies in designing the coordinated monitoring/enforcement program.

Consideration should be given to having Sus Ono, the Governor's Geothermal Coordinator, and appropriate top management personnel of DLNR and DOH, meet with the County Planning Director to develop a framework for consolidated geothermal monitoring and enforcement. A subsequent meeting(s) involving appropriate DLNR, DOH, and County representatives could develop a comprehensive consolidated monitoring and enforcement plan, a memorandum of understanding regarding interagency responsibility sharing, any needed legislation, and appropriate CIP/GF budgets, addressing among other things any new staffing and equipment requirements.

GEOTHERMAL PROGRAM PLANNING WORKSHOP

DISCUSSION PAPER

November 19, 1990

TOPIC: GEOTHERMAL ASSET FUND

Questions:

What positions should the State take concerning the Geothermal Asset Fund:

1. Relative to eligibility criteria? For example, who and under what conditions would parties be able to seek relief from the asset fund?
2. Should the State Administration submit legislation to the 1991 Legislature seeking authorization to divert HGP-A well steam sale proceeds into the asset fund? If so, should there be conditions attached to the authorization? For example, should some of the proceeds be retained by the State to help defray geothermal monitoring and regulatory expenses?
3. Should attempts be made to have all geothermal developers, whether operating under State or county permits, contribute to the asset fund? Currently only PGV is subjected to this requirement.

Background/Discussion:

The Hawaii County Planning Commissions on September 19, 1989, approved Puna Geothermal Venture's (PGV) Geothermal Resource Permit Application to develop 25 MW of power in Kapoho. As part of this approval the Planning Commission attached 51 conditions, one of which requires the contribution of dollar amounts by PGV and the State into a "Geothermal Asset Fund."

The concept of an asset fund which is intended to provide relief to parties adversely impacted by geothermal development emerged from the mediation process related to the PGV application. The concept was brought to the attention of Governor Waihee during a meeting with a delegation of Puna residents and County officials.

The State's position as presented to the Planning Commission on September 19, 1989, was as follows:

1. We supported the creation of an asset fund.

2. The State's contribution to the asset fund was to come primarily from the net proceeds derived from the sale of steam from the HGP-A well. Should any other funds be used to pay the initial installment those sources were to be repaid from future steam sale revenues. This reimbursement arrangement was not adopted by the Planning Commission.
3. The County of Hawaii is to establish and administer the asset fund. The establishment of the fund would require the adoption of appropriate rules under Chapter 91, Hawaii Revised Statutes.

During the 1990 session the Legislature through Representative Andrews challenged the Administration's position on committing of HGP-A steam sale revenues without legislative authorization. To rectify the situation the Administration made proposals to the Legislature whereby short and long-term means of funding the asset fund could be established. These measures got full support in the Senate but the House did not pass the long-term funding authorization. Interestingly, representatives of the Puna Community Council testified against Senate Bill 2212, the bill that would have provided long-term financing to the asset fund.

The Legislature did provide means for the State to make it an initial payment of \$250,000 to the asset fund. This payment has been made to the County of Hawaii by the Department of Land and Natural Resources. PGV has also made its initial payment of \$60,000.

The County of Hawaii has not yet adopted rules for the asset fund thereby precluding expenditures of deposited funds.

There is a sense of urgency to addressing issues related to the asset fund since PGV has initiated site preparation work for drilling of wells and constructing of the power plant. These activities have already prompted certain Puna residents to raise questions on means to tap the asset fund, and to attempt to stop the PGV project because the asset fund has not been formally established.

c:ASSETFUN/wang

AN OPEN LETTER TO GOVERNOR JOHN WAIHEE

October 25, 1990

Honorable John Waihee
Governor, State of Hawai'i
Hawai'i State Capitol
Honolulu, Hawai'i 96813

Dear Governor Waihee:

We are writing to express our extreme concern about the geothermal/cable project promoted by your administration. Given the extensive involvement of federal agencies and use of federal money, and the magnitude of environmental and cultural destruction posed by present and planned development activities, we call upon you to institute an immediate moratorium on all geothermal/cable project development activities. These activities include but are not limited to: the clearing of forest, verification and characterization of the geothermal resource, and the construction of infrastructure, such as roads and holding ponds.

We join Representative Patsy Mink in requesting that your administration abide by federal law as set out in the National Environmental Policy Act of 1969 (NEPA) and halt all geothermal/cable activities until a comprehensive federal Environmental Impact Statement (EIS) has been completed on the entire geothermal/cable project. As you are aware, the Sierra Club Legal Defense Fund has filed suit on behalf of the Blue Ocean Preservation Society, Greenpeace-Hawai'i, and Sierra Club against federal government agencies for not complying with their NEPA obligations. The suit is set for trial on January 8, 1991.

Specifically, the activities of True/Mid-Pacific, Ormat/Puna Geothermal Ventures, HGP-A, and the Scientific Observation Hole (SOH) program together with Pirelli's development of an inter-island cable constitute the starting point for the largest development projects ever undertaken in Hawai'i, with costs projected between \$2 and \$4 billion. This development is funded, planned guided and will be permitted by many federal agencies as well as the state. To date, federal support totals some forty million dollars, including more than \$27 million for cable research and development and \$10 million for the HGP-A demonstration plant. This figure does not include the \$5 million appropriated for Fiscal Year 1991 for verification and characterization of the geothermal resource on the Big Island.

In addition, we call upon the state to condition the moratorium on the completion of the Integrated Resource Planning (IRP) process. The IRP was inaugurated this year to assess Hawai'i's least-cost energy options. It does not make economic sense to promote the geothermal/cable project which will require greater energy consumption, not less, before Hawai'i assesses its longterm energy needs and least-cost options to meet those needs.

It is important to note recent developments in the past year pertinent to the geothermal/cable project:

1. You have stated in DOE hearings that the inter-island cable must be proven cost-effective and that energy efficient technologies would be supported on an equal basis with geothermal energy development. However, your request for federal funding for 1991 did not include efficiency or conservation projects.

2. In 1990, the state began the IRP process to assess its least cost energy options. However, simultaneously, the state has aggressively promoted the geothermal/cable project which would promote greater energy consumption, not less. In states like California and Nevada, least-cost energy policies have demonstrated conservation to be the least expensive and most efficient option.

3. Native Hawaiians with the Pele Defense Fund filed suit against the State's Department of Land and Natural Resources for illegally removing the Wao Kele O Puna forest from its ceded land and Natural Area Reserve status. Native Hawaiians have been denied access to Wao Kele O Puna Forest for the practice of their traditional cultural and religious rites, as guaranteed by state and federal constitutions.

4. Hawai'i's Department of Land and Natural Resources recently confirmed the existence of an extensive burial lava tube beneath the Wao Kele O Puna Forest.

5. The Hawai'i House of Representatives passed a resolution opposing additional state support or promotion of geothermal development until "questions regarding the social/environmental, logistical, technical, and economic aspects of these projects have been answered."

6. In September of this year forty-eight U.S. Representatives expressed opposition to federal funding for the exploration and characterization of the geothermal resource.

7. The California State Legislature passed a resolution in support of the protection of Wao Kele O Puna rainforest and in opposition to federal funding for the cable project.

It is our understanding that SOH and True/Mid-Pacific, upon finding "dry holes" in their first drill sites, are literally poised to begin clearing more forest for additional drill sites and connecting roads. This is totally unacceptable. There is no justification for further development activities to continue given the federal EIS and IRP have not been completed.

You now face a choice. Proceeding with the development of geothermal and cable activities is in violation of federal law and would continue the destruction of the United States' most significant lowland tropical rainforest. However, there is another option. You can choose to institute a total moratorium on all geothermal and cable activities. This is the only lawful, environmentally and culturally protective course available to your administration.

Thank you for your immediate consideration of this matter. We look forward to your timely response. Your reply may be addressed to the Pele Defense Fund / P.O. Box 404 / Volcano, Hawai'i 96785, fax: 935-3551; phone: 935-1663.

Respectfully yours,

Hawai'i Organizations

Big Island Rainforest Action Group
Blue Ocean Preservation Society
Citizens for Responsible Energy
Development With Aloha 'Aina
Living Indigenous Forest Ecosystems
(L.I.F.E.)
Maui Green Coalition
Maui Tomorrow
Pele Defense Fund
O'ahu Rainforest Action Group
Sierra Club-Hawai'i Chapter

National Organizations

Environmental Action
Friends of the Earth
Greenpeace
National Parks and
Conservation
Association
Rainforest Action
Network
Rainforest Alliance
Sierra Club

c.c. Senator Daniel Inouye
Senator Daniel Akaka
Congresswoman Patsy Mink
Congresswoman Pat Saiki
G. Bryan Harry, National Park Service
Colonel F.S. Wanner, U.S. Army Corps of Engineers
Admiral David E. Jeremiah, CINCPAC Pacific Fleet
Rear Admiral William Kozlovsky, U.S. Coast Guard
William Meyer, U.S.G.S.
Dr. Allan Marmelstein, U.S. Fish & Wildlife Service
John Naughton, National Marine Fisheries Service
John W. Shupe, U.S.D.O.E.
Vicki Tshuhako, E.P.A.

PATSY T. MINK
SECOND DISTRICT, HAWAII

WASHINGTON OFFICE
1725 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-1102
(202) 225-4808

Congress of the United States
House of Representatives
Washington, DC 20515-1102

DISTRICT OFFICE
MONOLULU
SUITE 5104 FEDERAL BUI
300 ALA MOANA BLV
MONOLULU, HI 96850-4
(808) 541-1888

STATEMENT BY THE HONORABLE PATSY T. MINK

THE DEVELOPMENT OF GEOTHERMAL ENERGY IN HAWAII

Washington, D.C.
October 24, 1990

As an island state, Hawaii depends on imported oil making it vulnerable to supply disruptions or price fluctuations. As we seek ways to lessen our dependence on imported oil and improve the energy security of our island state, Hawaii must develop an energy strategy that balances our need for energy and our desire to protect our unique environment.

The State Public Utilities Commission started to do this through the Integrated Planning Process in January of 1990. I commend the Commission for working to provide a comprehensive plan which will examine all energy supply and demand options, including geothermal and energy conservation.

Geothermal energy may have potential to make a significant contribution to Hawaii's energy needs. However, the decision to begin any geothermal project should be made in light of such things as cost, economic benefits, and the impact on the environment.

I believe that Congress has prematurely appropriated funds to develop geothermal resources on the island of Hawaii without knowledge of the full environmental impact. In light of this recent action, I join with the Sierra Club and others in calling for a moratorium on further development and the withholding of federal funds until a full environmental impact statement is completed. The environmental impact statement should take into account the impacts of the proposed exploratory drilling, as well as the commercial production of geothermal energy. In any case, should an environmental impact statement show no adverse effects, I would support the development of geothermal energy for the island of Hawaii only.

GEOHERMAL PROGRAM PLANNING WORKSHOP

DISCUSSION PAPER

November 19, 1990

TOPIC: STATE MANAGEMENT STRUCTURES FOR THE GEOHERMAL\CABLE PROJECT

Background

Previous planning documents (including G. Sumida's), consultant reports (including ENEL's), and respondents to the consortium RFP, among others, have argued that a dedicated State authority is needed to develop and manage the large-scale geothermal/cable project. Legislation to establish such an authority was proposed, but not enacted, in 1988.

Discussion

1. Full-Privatization Scenario

There are two basic scenarios under which the large-scale geothermal/cable project might proceed. The first is referred to for discussion purposes as the 'full-privatization scenario', in which a private consortium finances, constructs, owns, and operates the project. The role of the State in the full-privatization scenario is basically two-fold, involving on the one hand promotional and catalytic activities, and on the other hand regulatory functions. Promotional and catalytic activities include: funding exploration and resource studies; sponsoring legislation; spearheading and coordinating master plans and environmental studies; conducting public informational meetings; undertaking community awareness campaigns, etc. These activities are presently being undertaken by DBED. Regulatory functions include promulgating rules; monitoring geothermal construction, drilling, and operations; and enforcing rules and laws. These functions are presently shared primarily among DLNR, DOH, and Hawaii County.

The involvement of a private consortium headed by a strong company is highly desirable and probably essential to the success of the large-scale geothermal/cable project. It is especially important to raising major overall project financing from private sources. It is perhaps the only scenario which is politically feasible at the present time.

Recommended State Management Structure for the Full Privatization Scenario

The state management structure appropriate to the full privatization scenario must take into account both the promotional/catalytic role of DBED and the regulatory role of DLNR, DOH, and other State agencies. DBED's mission is to foster

alternative energy development so as to reduce the State's overwhelming dependence on oil and other fossil fuels. The mission of DLNR and DOH is to protect the environment and natural resources of Hawaii as well as the health and well-being of its citizens.

The drive for energy independence involves difficult decisions, tradeoffs among competing interests and objectives, and constant dispute resolution. This suggests the need for a unified management structure. A structure which might be appropriate to the full-privatization scenario is one modeled after the existing Commission on Water Resource Management ("Water Commission"). For the purpose of this discussion the proposed commission is referred to as the "Alternative Energy Development Commission" ("AEDC"). Like the Water Commission, the AEDC might consist of six members, with three members being appointed by the Governor subject to confirmation by the Senate. The other three members might be the directors of DBED, DLNR, and DOH, respectively, with the chairperson being the director of DBED, because DBED is the only agency whose mission is the development of alternative energy. The proposed commission might be conceived more broadly as an alternative energy development commission rather than more narrowly as a geothermal development commission in the interest of flexibility and balance. The commission's purpose would be to develop the renewable resources of the state rather than to develop geothermal energy to the exclusion of other worthy projects. Part and parcel of the commission's mandate would be the promotion of conservation and the sponsoring of meritorious conservation projects.

The legislative bill establishing the AEDC would articulate and define the State's objectives and policies relative to alternative energy development, would grant the AEDC broad authority and discretion to pursue these objectives, and would set forth rules and procedures for streamlining the processing of permit applications for alternative energy projects deemed important and necessary by the AEDC.

2. State Development Authority Scenario

The second basic scenario under which the large-scale geothermal/cable project might proceed is referred to for discussion purposes as the 'state development authority scenario'.

Without the involvement of a private consortium the future of large-scale geothermal development would be seriously compromised. If it were to proceed at all based on private initiative it would probably be in piecemeal fashion over a very long period of time. In order for the State to meet its objective of developing alternative sources of energy expeditiously, a state development authority, with powers and responsibilities substantially greater than the AEDC, would be required.

The proposed state development authority would be created and funded by the Legislature. It could be established solely for the purpose of developing the geothermal/cable project, or its authority could extend to alternate energy development in general. In either case, it would likely face greater opposition from environmentalists and citizens concerned about government spending than would the AEDC. Until or unless a new 'energy crisis' is experienced, its political acceptability is questionable. Without such an entity in place, however, it is difficult to envision how a project as complex and large as the proposed geothermal/cable project could be advanced.

A key element of the state development authority scenario is a consolidated permitting process to facilitate the development and financing of the geothermal/cable project by coordinating the multiple state and county agency jurisdictions for approvals presently required, thereby reducing the time and risk capital needed to permit and develop the project. A step in this direction was provided by the legislature in 1988, when it enacted a bill designating DLNR as the "lead agency", establishing certain streamlined permitting procedures, and providing guidelines for interagency cooperation. The extent to which greater permit consolidation and streamlining is needed is an important issue which needs to be addressed.

Recommended State Management Structure for the State Development Authority Scenario

Since it would be the prime mover for developing the geothermal/cable project and perhaps other alternative energy projects, the proposed state development authority would assume much greater responsibilities than would be assumed by the proposed AEDC. It would need to be a large, public corporation structured perhaps along the lines of ENEL, the National Power Authority of Italy, the entity which is solely responsible for developing and operating geothermal facilities in Italy. It would require a board of directors, perhaps appointed by the Governor and a full-time management organization headed by a chief executive officer. Management divisions reporting to the CEO might include: (1) exploration/development; (2) operations; (3) environmental/permitting; (4) finance/accounting; and (5) construction/engineering. A substantial number of technical and managerial personnel would be required. ENEL has indicated that minimum staffing would consist of approximately 50 to 100 persons.

DRA:mgmt.mem



**DEPARTMENT OF BUSINESS
AND ECONOMIC DEVELOPMENT**

JOHN WAIHEE
GOVERNOR

ROGER A. ULVELING
DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

LESLIE S. MATSUBARA
DEPUTY DIRECTOR

ENERGY DIVISION

335 Merchant Street, Room 110, Honolulu, Hawaii 96813
Telephone 548-4080

Date: November 19, 1990

To: All Attendees of the Geothermal Program
Planning Workshop

From: Geothermal Project Office

 FYI

 As requested

 Please return

 Comment and return

 Please call re attached

There is a change of meeting rooms as follows:

November 20th, Tuesday Plumeria Room

November 21st, Wednesday Ilima Room

Lunch Ilima Room



DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT

ENERGY DIVISION, 335 MERCHANT ST., RM. 110, HONOLULU, HAWAII 96813 FAX: (808) 531-5243

JOHN WAIHEE
GOVERNOR

ROGER A. ULVELING
DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

LESLIE S. MATSUBARA
DEPUTY DIRECTOR

ANNOUNCEMENT AND AGENDA

GEOHERMAL PROGRAM PLANNING WORKSHOP

DBED wishes to inform you of its planned two day Geothermal Program Planning Workshop scheduled to be held in Honolulu on November 20 and 21, 1990 at the Ala Moana Hotel-Ramada Renaissance.

The purposes of the workshop will be:

1. To assess where the geothermal program is now and where geothermal fits in the overall energy picture; to review issues affecting the program.
2. To obtain input from State department heads and key personnel involved in geothermal matters on future priorities, needs, opportunities, and program direction.
3. To discuss needed and proposed legislation.
4. To receive status reports and input from involved private consultants, County officials, and developer representatives.
5. To develop recommendations for submission to the Governor.
6. To provide an opportunity for involved State department heads and involved key personnel to inspect the SOH drilling sites, commercial drilling and plant sites, and the Puna Geothermal Research Center.

PARTICIPANTS

The following persons are asked to attend the full Workshop:

DBED: Roger Ulveling; Les Matsubara; Maurice Kaya; Dean Anderson; Gerald Lesperance; Michelle Wong-Wilson

Governor's Office: Susumu Ono; Gerald Demello

DLNR: William Paty; Manabu Tagamori; Dean Nakano; Janet Swift

DOH: Dr. John Lewin; Dr. Bruce Anderson; Paul Aki; Willy Nagamine

Governor's Advisory Board: Chairman or designated representative

HIG: Dr. Donald Thomas
B & F: Yukio Takemoto; Bob Takushi
OSP: Harold Masumoto

The following persons will be invited to provide presentations on their respective programs for consideration by the State planning team.

NELH: Clare Hachmuth
COUNTY: Planning Director or designated representative
HNEI: Dr. Harry Olson
HECO: Rick McQuain
PGV: Maurice Richard
True/Mid-Pac GV: Allan Kawada or Rod Moss

The following will be available as resource persons to the State planning team:

ERCE: Frank Kingery *John Porteus*
COMPAC: Steve Okino; Doug Carlson

SCHEDULE AND AGENDA:

Tuesday, November 20

1:30 PM Convene at the Carnation Room.

1:30 PM - 2:15 PM

Opening remarks by Roger Ulveling and Susumu Ono. Discussion of the present status of the State's geothermal program and where geothermal fits in the overall energy picture. Discussion of issues. Review of work in progress, active consulting contracts, funding sources and levels, State agency roles and relationships, Federal and County involvement, private sector activities, program objectives, strengths and weaknesses. Establish future direction.

2:15 PM - 3 PM

Presentation by DLNR on the status of regulation (asset fund, resource management, monitoring and enforcement, cross-training of State agency field personnel, etc.) Discussion of needs and objectives. Establish future direction.

3 PM - 3:45 PM

Presentation by DOH on the status of regulation (air quality, U.I.C., noise, etc). Discussion of needs and objectives. Establish future direction.

3:45 PM - 4:15 PM

Presentation by Harry Olson on the status of the SOH Program.

4:15 PM - 4:45 PM

Presentation by Rick McQuain on the status of consortium negotiations and HECO's planning work on the cable/geothermal project. Questions and answers.

Wednesday, November 21, 1990

8 AM - 8:30 AM

Convene at the Pakalana Room. Coffee and doughnuts.

8:30 AM - 9 AM

Presentation by Frank Kingery on the status of the cable/geothermal project master planning effort. Questions and answers.

9 AM - 9:30 AM

Presentation by Maurice Richard on the status of the Puna Geothermal Venture project.

9:30 AM - 10 AM

Presentation by Allan Kawada or Rod Moss on the status of the True/Mid Pacific Geothermal Venture project.

10 AM - 10:15 AM BREAK

10:15 AM - 10:30 AM

Presentation by Clare Hachmuth on the status of the Puna Research Center.

10:30 AM - 11:30 AM

Presentation by Duane Kanuha on the role of the County in geothermal exploration, development, and regulation. Discussion.

11:30 AM - NOON

Presentation by Michelle Wong-Wilson on community problems including local opposition and active litigation. Discussion.

NOON Lunch in the Anthurium Room.

1:30 PM - 3 PM

Workshop to formulate recommendations for consideration by the Governor as well as legislation to be introduced in the 1991 session.

3 PM - 3:15 PM BREAK

3:15 PM - 4:30 PM

Summary of Conference Findings and Achievements and Closing Remarks by Roger Ulveling and Susumu Ono.

WORKSHOP COORDINATION; CONFIRMATION OF ATTENDANCE.

Participants are asked to notify DBED'S Geothermal Office (586-2353) of their plans to attend the Workshop.

DBED will prepare working papers to facilitate discussion of issues during the Workshop. Participants are encouraged to come prepared with policy suggestions, priorities, possible legislation, etc.

DRA:novconf.mem

+

GEOTHERMAL PROGRAM PLANNING WORKSHOP

DISCUSSION PAPER

November 19, 1990

This paper responds to the Open Letter to Governor John Waihee for Geothermal Moratorium, dated 10-25-90. (attached), which was submitted by the Pele Defense Fund and other environmental organizations. For legal reasons it was decided not to actually send this response to the Pele Defense Fund. This paper discusses the position of the Waihee administration with regard to resource verification and characterization as well as to planning of the geothermal/cable project. It also summarizes the record of the Administration in providing appropriate environmental documentation for prior geothermal initiatives.

The open letter conveys the mistaken impression that the Waihee Administration has made an irrevocable commitment to the development of the largescale geothermal/cable project, which in the view of the signatory organizations portends massive "environmental and cultural destruction". No such commitment has been made. The Administration has proceeded cautiously to support sufficient geothermal development to serve the near term requirements of the Big Island for additional baseload generation. The 25 megawatt facility presently under construction is being financed entirely from private sources, and it will defer the need for HELCO to build a new fossil fuel burning plant.

The Administration is supporting a carefully conceived program to verify and characterize the potential geothermal resource and to carry out the appropriate master planning and environmental studies for the proposed geothermal/cable project. No decision to proceed with the development of the large-scale project will be made until all of the facts are in and until the public is afforded ample opportunity to provide input. No attempt has been on the part of the Administration to shorten or circumvent the environmental review process. Preparation of a full environmental impact statement, one in full compliance with NEPA requirements, has been part of the master planning work scope and budget since February, 1990.

Efforts to promote geothermal development have not been made to the exclusion or detriment of conservation initiatives. The Administration agrees that conservation, to the extent that it can be achieved, is the least expensive and most efficient option. The State's highest energy priority is to foster conservation. However, there are limits to the extent to which the State can mandate conservation; energy demand is forecast by the State and utilities to increase irrespective of progress in conservation. If contingency plans are not made now for meeting increased energy demand in the future, the State's public utilities will again be required to meet such demand by adding fossil-fuel burning

capacity, which is highly undesirable from environmental and economic perspectives. Even with aggressive implementation of conservation measures, the State's almost total dependence on imported petroleum will remain undiminished. Among the available alternatives, geothermal energy has the best near-term potential for reducing this over-dependence.

The Administration is committed to integrated resources planning (IRP). In January, 1990, the State PUC issued an order requiring the public utilities to utilize IRP in their planning processes. However, it will be several years before the effect of IRP planning will be known, and there is no certainty that IRP planning in and of itself will avoid the need for the utilities to expand generating capacity to meet increased energy demand.

In response to the reference in the open letter to alleged "illegal... removing of the Wao Kele O Puna forest from its ceded land and Natural Area Reserve Status", it may be said that the land exchange which prompted the lawsuit was initially proposed by local residents and environmental groups and was supported by the National Park Service as a means of preserving the more pristine Kahauale'a forest while restricting geothermal exploration and development to the less pristine Wao Kele 'O Puna forest. The exchange involved no loss of land rights for Hawaiians. Ceded land rights were transferred in the land exchange and now reside with the Kahauale'a lands. Native gathering rights within the Wao Kele ahupua'a continue for residents of the ahupua'a. The only areas restricted to access are those actually under development, which are estimated to not exceed 300 acres. The rest of the forest (26,700 acres) will remain open to to ahupua'a residents.

In response to the demand for an immediate moratorium on all geothermal/cable project development activities, no useful purpose would be served by imposing such a moratorium at this time. It would not affect the Puna Geothermal Venture project, which is fully permitted and proceeding with construction. This is the only geothermal activity under construction at this time. The resource verification and characterization program involves no construction and entails very little environmental impact. The State-sponsored Scientific Observation Hole #1 (SOH-1) is being drilled on fallow agricultural land, and the drill site occupies less than one third acre. The planned SOH-3 drill site is likewise on fallow agricultural land and will involve no new road construction. SOH-2 will be located in a section of the Wao Kele O Puna Forest which has been invaded by exotic plant species, notably strawberry guava. The drill pad and access road will be built in accordance with Department of Land and Natural Resources requirements to minimize impacts. Before grading and grubbing can begin, the area will be surveyed for the presence of medicinal herbs and cultural resources, including lava tubes where ancient artifacts may be buried. True/Mid-Pacific's exploratory drilling will be done along the existing access road; an extensive plant survey will be made

prior to any clearing.

Verification and characterization of the geothermal resource is a vital component, but only one element, of the State's overall energy resource planning, which includes conservation and investigation of other renewable technologies, including solar thermal, photovoltaics, wind, biomass, ocean thermal energy conversion, hydroelectricity, and hydro pumped storage. It is the Administration's policy to take a balanced and integrated approach to energy resource development and utilization. Among the technologies potentially available, geothermal and biomass are regarded as unique in being proven, commercially viable, and able to provide continuous, firm energy. It would be unwise to neglect their potential for meeting part of Hawaii's energy needs.

It is not appropriate at this time for the State to respond to the accusation that federal agencies have failed to fully comply with NEPA requirements, since that is the subject of the lawsuit referred to in the open letter. However, it is a matter of record that all State requirements have been fulfilled and, in some cases, exceeded. The State has complied with the letter and spirit of NEPA and with its own environmental laws and regulations by requiring appropriate environmental review and documentation for all past and present geothermal activities, including permitting actions. Each discrete geothermal/inter-island cable activity to date has been preceded by an environmental assessment (EA) and/or environmental impact statement (EIS) even though, in some cases, none was required.

A complete list of geothermal activities and the environmental document prepared in each case is provided below.

Environmental Documents Prepared in Conjunction with State and Federally-Sponsored Geothermal Activities

- * In 1978, the State completed an EIS for the Hawaii Geothermal Research Station, a proposed research and development project, at the HGP-A geothermal well site in the lower Kilauea East Rift Zone (KERZ).
- * In 1979, the U.S. Department of Energy, prior to providing federal funds for the Hawaii Geothermal Research Station, conducted an EA in compliance with the National Environmental Protection Act (NEPA), which resulted in a finding of no significant impact (FONSI). In 1983, after the facility was completed, the U.S. District Court, in the "Puna Speaks" trial, found that the requirements of NEPA were satisfied in full. The power plant was permanently closed down in 1989.
- * In 1982, the Board of Land and Natural Resources (BLNR) accepted an EIS for a proposed 250 MW commercial geothermal project in Kahauale'a, within the upper KERZ conservation district, by True/Mid-Pacific Geothermal

Venture. In 1986, BLNR accepted a revised EIS from the developer when the proposed project was to be relocated to the middle KERZ and reduced to 100 MW. Exploration was initiated by the developer in November 1989 and to date, no construction activity has taken place.

- * In 1983, Act 296 required that BLNR make a statewide assessment, taking into account environmental considerations, then designate geothermal resource subzones as the only land areas in which geothermal activity could take place. No EIS was required for this process.
- * In 1983, the USDOE evaluated the environmental effects of the planned initial feasibility study for the Hawaii Deep Water Cable Project (HDWC) in accordance with requirements of NEPA and determined that neither an EA nor an EIS was required. HDWC was a multi-million dollar, multi-year research and development project to determine the technical and environmental feasibility of an inter-island transmission system. The only significant HDWC field activity in Hawaii was the deployment and retrieval of a 6-mile long "surrogate cable" (a non-energized wire rope) completed in December 1989 in the Alenuihaha Channel.
- * In 1986, although an EIS was not required, the Mayor of the County of Hawaii accepted an EIS for a 25 MW geothermal project in lower KERZ by Puna Geothermal Venture. Construction commenced in October, 1990 and is expected to be completed in 1991.
- * In 1987, the State completed an EA for the inter-island cable system. This document was not required but was done to pull together all the environmental considerations for the cable system.
- * In 1989, the University of Hawaii completed an EA with a finding of a no significant impact for four to six scientific observation holes (SOH) within pre-designated geothermal resource subzones. The SOH program commenced in late 1989 and is expected to be completed in 1991.
- * In 1989, the State completed a comprehensive environmental review for a 500 MW geothermal project.
- * In February, 1990, the State awarded a contract to ERC Environmental and Energy Services Company to prepare a master development plan, conduct an overland transmission corridor analysis, and prepare an EIS for the large cable geothermal/cable project. The draft EIS will be scoped in early 1991, and an informational meeting conducted to

receive public input.

Studies performed to date for the geothermal/cable project have been preliminary feasibility studies, which have been conceptual in nature and non-specific with respect to lands to be used and project components.

In October 1990, the U.S. Congress appropriated \$5 million for Hawaii geothermal resource verification and characterization. The administering federal agency, which will likely be the U.S. Department of Energy, will have to decide, before allocating these funds, if an EA or EIS is required.

It is likely that certain federal permits will be required in the future, especially for the cable segment of the geothermal/cable project. These include Army Corps of Engineers and National Marine Fisheries Service permits. Pursuant to the Geothermal/Cable Permitting Act of 1983, the State Department of Land and Natural Resources has consulted with all federal agencies through the interagency group established purposely for this project.

This paper was prepared by Dean Anderson and Gerald Lesperance for discussion purposes only and does not necessarily reflect the official position or policy of the Waihee Administration.

DRA:envrn.doc

GEOHERMAL PROGRAM PLANNING WORKSHOP

BRIEFING PAPER

November 19, 1990

TOPIC: DBED'S PLANNED PUBLIC INFORMATION AND COMMUNITY RELATIONS PROGRAM

In October, DBED issued an RFP asking for assistance from qualified local firms in the design and implementation of a one-year public information and community relations program to promote better understanding of the State's energy program, and in particular the role of geothermal. Responding firms were asked to describe how they would: (1) define and target different 'audiences' (public segments, community groups, etc.) for information and what media (methods of communication) they would use to reach these audiences; (2) assess and monitor public attitudes and interests; (3) increase public awareness of the State's geothermal policy and programs and instill in the public confidence that what the State is doing is adequate, reasonable, and sensitive to community values and the interests of the various islands and State as a whole; (4) communicate to the public news of ongoing activities associated with the State's geothermal program during the one-year term of the contract; (5) inform the public of how geothermal fits into the total energy picture, including the State's efforts to promote conservation, integrated resource planning, demand-side management, and other alternative and renewable energy technologies; (6) communicate to the public accurate information concerning the regulation of geothermal development, including monitoring of related activities and enforcement of rules to protect the environment and safeguard public health; (7) counteract any misinformation concerning the State's geothermal program being disseminated by opponents of geothermal development; (8) measure, after-the-fact, by survey or other method, the effectiveness of their public information and community relations programs; and (9) magnify the effectiveness of limited financial resources by attracting media attention, etc.

DBED will evaluate the proposals giving weight to the following: (1) the qualifications of personnel to be assigned to the project; (2) the effectiveness of the proposed program; (3) how well the recommended tasks and activities address the needs and objectives of the State and constitute a comprehensive and thoughtful approach to the desired results; (3) the proven ability of the responding firm to assess public opinion, conduct information and public relations programs, and to utilize media resourcefully and effectively; (4) the demonstrated experience of the firm in similar projects in Hawaii, including public/private sector joint efforts; and (5) the proven effectiveness of the firm in managing controversial issues in Hawaii and its ability to monitor the activities of interest groups, assess community attitudes and public opinion, and respond effectively to challenges

to a controversial project.

Firms which had responded to the RFP as of the date of the conference included: Stryker, Weiner Associates, Inc.; Westpac Communications; AdCorp International Hawaii, Inc.; Hill and Knowlton/Communications-Pacific, Inc.; Dicarlo and Woodrum Advertising Agency, Inc.; Smith Davis Advertising; Pacific Marketing and Advertising, and Bruce Benson.

DRA:rfp1190.mem

GEOHERMAL PROGRAM PLANNING WORKSHOP

BRIEFING PAPER

November 19, 1990

**TOPIC: PROGRESS REPORT ON DBED'S RESOURCE VERIFICATION AND
 CHARACTERIZATION (RVC) PROGRAM**

Present Knowledge of the Resource

The status of our present knowledge of the geothermal resource in the KERZ may be described as follows: (1) There is a reasonable likelihood of sufficient heat and permeability in the vicinity of HGP-A to support 25 megawatts of development; (2) There is preliminary evidence of sufficient heat deep within the KERZ on a broad scale to support several hundred megawatts of development; (3) Indications are that groundwater within the KERZ is present in sufficient quantities to support large-scale geothermal development, but it may or may not be located within the 'hot' portion of the deep aquifer; and (4) It is not known whether permeability in the 'hot' portion of the deep aquifer is localized or widespread. If it is localized, sufficient resource may exist for large-scale development but require extensive exploratory drilling to locate, thereby increasing costs. If it is widespread, fewer exploratory wells will be required to locate the resource and fewer production wells will be required to exploit it, thereby improving the economics.

DBED's RVC program has two fundamental objectives: (1) to stimulate private sector investment in exploration, and (2) to determine if sufficient resource exists not only to meet the expanding baseload energy requirements of the Big Island but also to support any potential large-scale geothermal/cable project.

The extent of government assistance to and involvement in geothermal exploration will depend in part on whether or not a well-capitalized private consortium enters the picture. It is reasonable to assume for the moment that irrespective of the entry or non-entry of a consortium, government assistance will be required to support **regional** resource evaluation, as distinguished from **field** exploration on sites leased by private developers.

The elements of resource evaluation which may require public assistance depending on circumstances (including the activities of commercial developers and the involvement of the consortium) are these: (1) regional geologic and geophysical surveying; (2) regional mapping; (3) exploratory drilling; and (4) reservoir and well testing. The following is a discussion of each element:

1. Regional Geologic and Geophysical Surveying:

ENEL and HNEI agree that, in conjunction with exploratory drilling, three types of aerial/surface surveys should be performed on a regional scale: (a) surface gravity (gravimetric); (b) aerial magnetic (magnetometric); and (c) passive and active seismic. These surveys help the investigator to understand the subsurface geologic structure of the potential resource zone. They also enable the investigator to 'see' surface geologic features which cannot be seen at ground level because they are hidden by vegetation and in some cases by man-made structures, such as roads. The purpose of a gravity survey is to identify rock density anomalies which may have been caused by intrusive bodies or geologic structures that form the rift zone. The purpose of a magnetic survey is to identify magnetic field anomalies which may be attributable to high temperature basalts and/or circulating thermal fluids. Passive and active seismic surveys help identify permeable zones within a rift zone where heat is known to occur. Passive seismic surveys allow identification of active fracturing within the rift which may be indicative of permeability. Active seismic surveys allow identification of broad scale structures, including magma bodies, within the rift zone.

(Note: a fourth type of survey, the resistivity or electrical survey, helps locate warm, saline geothermal fluids. It is a more localized survey and can be performed, if desired, by private concerns in conjunction with their localized exploratory drilling.)

The specific focus and prioritization of survey work will be determined by technical consultants.

2. Regional Mapping:

The aforementioned aerial/surface surveys will result in the creation of specialized maps including a gravity map, a magnetic map, and a seismic map. Consideration is being given to preparing a geologic map in cooperation with the USGS. This map would incorporate available data updated by new ground surveys where appropriate and would be of assistance to the private exploration program. ENEL recommends that it be produced ultimately at a scale of 1:50000. However, the surveying work required to produce a map at such a scale would probably require ten years to complete. It is hoped that a revised geologic map at a scale of 1:25000 can be produced within two to three years. This will depend on the participation of USGS in the surveying work. Apparently, USGS has expressed serious interest in cooperating with the State on this effort. It is also hoped that the Geothermal Resources of Hawaii map can be updated to incorporate the new information obtained from the foregoing surveying and mapping work.

3. Exploratory Drilling:

a. Commercial developers are performing 'localized' exploratory drilling in the KERZ using production-scale wells. However, if the State's stated objective is to determine the existence and nature of a large-scale resource, it is contingent upon the State to proceed with 'regional' exploration, or, in other words, with that exploration which the private sector is unable or unwilling to do.

c. The decision on whether to drill slim holes or production-scale exploration wells is a complex one dependent on circumstances and objectives and requiring technical assistance. Generally speaking, the advantages of slim holes include the following:

(1) Core samples obtained from slim holes provide a continuous, actual record ('ground truth') of the geologic structure and mineralization. In some cases it may be possible to reduce costs by rotary drilling through the shallow portion of the aquifer and core drilling only below the casing. Aerial and ground surveys merely indicate general resource potential and help target potential drilling sites.

(2) Slim holes can provide nearly as good heat, pressure, and flow information as production-scale exploratory holes. Injection, flow, and interference tests can be performed safely and with meaningful results and should be allowed by local government under controlled conditions.

(3) Slim holes have substantially less environmental impact and require substantially less land area than production-size exploratory holes.

(4) Private companies have to date indicated a willingness to undertake localized exploratory drilling, using production-scale wells, based on the availability of appropriate incentives in the form of sufficient electrical demand and the availability of power purchase agreements on attractive terms.

(5) **On average** slim holes should cost approximately one half as much as production-scale exploration wells. (One way to keep the costs of a slim hole to a minimum is to rotary drill the casing portion (upper 2,000 to 3,000 feet).)

d. In general, the advantages of production-scale exploration wells include the following:

(1) A flow test conducted on a production-scale well can be used to accurately determine its production potential.

(2) If the well taps into a hot and permeable reservoir, it can be used as a production well, thereby recouping its drilling cost and generating revenue. In other situations, such as where it strikes a porous, cold zone, it might be used as an injection well, depending on its proximity to production wells.

(3) In some instances (such as the nearly continuous bad rock encountered by SOH #1), it may be possible to drill a production-scale well deeper than a slim hole.

(4) Some geophysical tests can only be performed on a production-scale well because the larger diameter of the hole allows certain instruments to be used which a slim hole wouldn't accommodate.

4. Reservoir and Well Testing:

a. Both ENEL and HNEI recommend performing geochemical surveys on existing deep wells (those drilled previously) and the slim holes being drilled currently, as well as on existing water wells and surface thermal features. Chemical and isotopic analyses should be carried out, including determinations of major trace elements. Appropriate laboratory tests should be conducted. The purpose of analyzing water samples from surface thermal features is to determine the presence of geothermal fluids which may be flowing or 'leaking' to the surface, and thus indicative of the presence of a nearby resource at depth.

b. Injection and flow testing of all future slim holes to be drilled inside or outside the KERZ. It will be important to obtain permission from county and state agencies to perform controlled flow tests on future slim holes.

c. Interference testing between slim holes and commercial production or injection wells in cases in which they are sited in close proximity to one another.

d. Geologic and geochemical analyses of core samples taken from slim holes.

e. Down-hole geophysical logging of slim holes.

Status of the DBED's Scientific Observation Hole (SOH) Program

SOH #1 has experienced substantial cost overruns as a result of encountering almost continuous 'bad rock' below 2,000'. It is now projected to cost between \$2 million and \$2.3 million if drilled to 6,500'. Since SOH #4 cost \$1.75 million, the combined cost of these first two SOH wells is now projected to be \$3.75 to \$4.15 million, assuming SOH #1 is drilled to 6,500'. Consideration is being given to drilling SOH #1 to only 5,000', which is the maximum reinjection depth being considered by Puna Geothermal Venture.

The SOH program is highly valued by the commercial interests presently active in the KERZ. Discussions held with representatives of True/Mid-Pacific and Ormat, including their technical consultants, have highlighted the importance which the developers ascribe to SOH and the usefulness to them of the information being obtained by SOH about the geothermal resource in general and about drilling conditions in particular. The private developers are very interested in seeing the program continue and are eagerly awaiting results from SOH #1, 3, and 2. True/Mid-Pacific has indicated that information from SOH #3 may directly influence their drilling program. Ormat is anxious to see SOH #1 drilled to at least a depth of 5000' (in spite of its difficulties) in order to better understand the potential injection zone in this area.

Because of the cost overruns and drilling problems encountered by HNEI in the first two SOH holes, DBED sought technical assistance from two sources: (1) ENEL is providing consultation services as part of its present contract; and (2) A new short-term contract has been entered into with Ralph Patterson and Associates (RPA). RPA consists of individuals, including geologist William D'Olier, who were previously associated with Thermal Power and who have exploration drilling experience in the KERZ. Both ENEL and RPA will report their findings to DBED by mid-December. The reports will include an assessment of HNEI's management, including its control of costs, and the drilling performance of its subcontractor. The decision whether or not to continue drilling SOH #1 below 5,000' will be made no later than December 15th. (RPA and ENEL have both recommended that SOH #1 be drilled at least to 5,000' if possible.)

Permitting of SOH #3 and SOH #2 is being handled in parallel in order to avoid a possible delay which might cause standby drilling rig charges to be incurred. As a matter of contingency planning it is necessary to proceed to permit SOH #2 as expeditiously as possible because new DLNR requirements for a medicinal herb survey and cultural resource survey pertaining to lava tubes used by native Hawaiians to bury artifacts in the Wao Kele O Puna forest may delay issuance of the grading and grubbing

permit for SOH #3. SOH #3 is planned to be drilled to the north of True's rig in the Middle East Rift Zone; it requires construction of a road approximately 3,000' in length. SOH #2 will be drilled in the Kapoho Section in an area zoned for agriculture; it does not require any road construction but is in the vicinity of a few private residences.

Written reports on the SOH program will have been received from RPA and from ENEL by mid-December. These reports will make specific recommendations for improving the SOH program which should be useful in making decisions relative to SOH #3 and SOH #2 with regard to siting, drilling methods, geophysical tests to be conducted, and data analysis. It is contemplated that within the next few months DBED will enter into a longer term contract with a major geothermal consulting firm for technical assistance to be provided over the next eighteen months to two years. Included in the consultant's scope of work will be guiding DBED in its decision-making relative to the fate and direction of the SOH program as well as to other resource verification techniques, including surface and aerial mapping and down-hole geophysical and geochemical analyses.

DBED plans to solicit proposals for technical services needed for its RVC program during the next two years. The solicitation will be disseminated to those companies with demonstrated experience in **regional** resource evaluation and whose expertise extends to design and engineering of well-fields and power plants in addition to resource assessment. ENEL, Works Consultancy, and Geothermex are among the companies which would seem to possess the requisite qualifications and which would be expected to respond to any solicitation.

DRA:rvcp1190.mem

(DBEDSPEECH)

GEOHERMAL PROGRAM PLANNING WORKSHOP

November 20-21, 1990

Good Morning! On behalf of the Department of Land and Natural Resources, I would like to thank you for this opportunity to participate in today's Geothermal Program Planning Workshop sponsored by the Department of Business and Economic Development and Tourism.

The Department of Land and Natural Resources has been mandated with much of the regulatory responsibilities related to geothermal exploration and development activities.

Some of the major programs/areas under the jurisdiction of the Department and/or through the Board of Land and Natural Resources are:

- 1) The use of lands within the Conservation District, as established by the State Land Use Commission. (Ref. Chapter 183, HRS, and DLNR rules and regulations Chapter 13-2)
- 2) The designation and regulation of Geothermal Resource Subzones (GRS), which requires that development and production of electrical energy from geothermal resources be conducted only within these designated subzone areas. (Ref. Chapter 205, HRS, and DLNR rules and regulations Chapter 13-184)
- 3) The leasing of geothermal resources and the regulation of drilling activity in accordance with established rules and procedures. (Ref. Chapter 182, HRS, and DLNR rules and regulations Chapter 13-183)

- 4) Administration of the State's Historic Preservation Program which requires a Historic Site Review of all applicable projects to evaluate the effect of any proposed construction, alteration, or improvement of any nature on historic properties. (Ref. Chapter 6E, HRS, and "draft" DLNR rules and regulations Chapters 13-146 to 13-154)

Some of the geothermal regulatory functions or programs administered by the Department are:

- o Six (6) State Geothermal Resource Mining Leases (GRML) encompassing approximately 14,069 acres.
- o Four (4) Designated Geothermal Resource Subzones (GRS) totaling approximately 26,013 acres.
- o Review and permitting of all proposed geothermal exploration and development activities, (i.e. issuance of geothermal well drilling permits).
- o Monitoring of geothermal field operations, such as well drilling and inspection of existing geothermal wells.
- o Providing assistance and information to interested parties through the Department's Geothermal/Cable Permit Center, as well as coordinating the consolidated interagency permit application and review process for the proposed geothermal/cable project.

Some of the specific projects that are currently under review and/or being monitored by the Department are:

- 1) Review of the proposed sale of steam from the existing HGP-A well to Puna Geothermal Venture (Ormat). (DBED/NELH can discuss in detail the status of negotiations between PGV and NELH)

- 2) Evaluation of True/Mid-Pacific Geothermal Venture's plan to mobilize to Well Site # 2 and review as to their compliance with specific conditions of the CDUA permit authorizing such activity.
- 3) Regular inspection of the continuing exploration and development activities such as:
 - a) Construction activity at the site of the Puna Geothermal Venture project, and the current drilling of geothermal well Kapoho State # 3.
 - b) Operations related to the drilling of Scientific Observation Holes SOH-4 and SOH-1 by the University of Hawaii/HNEI.
 - c) The drilling and flow testing of the True/Mid-Pacific geothermal well.

Lastly, I would like to touch upon some of the Department's future goals and objectives as they relate to geothermal development activities. Some of these goals can be summarized as follows:

- o Pursuant to recent legislative Acts, we have begun to draft amendments to our Department's administrative rules concerning both the leasing and drilling of geothermal resources, and the designation and regulation of geothermal resource subzones. An example of such statutory amendment is the recent passage of Act 207, SLH 1990 which permits the drilling of exploratory wells outside of designated geothermal resource subzones, provided that these wells are for scientific purposes or to determine the economic viability of a geothermal resource.

- o The Department has also assisted in the initial efforts to coordinate and establish an integrated monitoring team to regulate and monitor geothermal development activities. This "team" concept proposes to combine State departmental resources and personnel that will cooperate with, and assist respective county agencies.

Towards this end, the Natural Energy Laboratory of Hawaii Authority (NELHA) has been requested to explore the possibility of using a portion of the net revenues from the future sale of steam from the HGP-A well to acquire additional monitoring equipment, as well as explore the possibility of using the former HGP-A power plant facility to house the proposed integrated monitoring team.

- o With regards to the Interagency Group for Geothermal and Cable Development Permitting, a consolidated permit application form has been finalized for use by potential applicants. The Department has also drafted general guidelines and operating procedures for the Interagency Group and the consolidated permit review process. Future Interagency Group meetings are planned to review and discuss the actual "mechanics" of consolidating permits and the use of a Consolidated Permit Application and Review Team (CPART) as mandated by law.

This summarizes a very brief look at some of the regulatory functions and activities administered by the Department of Land and Natural Resources through its various Divisions.

While all of DLNR's divisions are not represented here today, I will be glad to try and answer any questions that you may have. Thank you again for this opportunity to participate in today's geothermal workshop.



DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT

JOHN WAIHEE
GOVERNOR
ROGER A. ULVELING
DIRECTOR
BARBARA KIM STANTON
DEPUTY DIRECTOR
LESLIE S. MATSUBARA
DEPUTY DIRECTOR

ENERGY DIVISION, 335 MERCHANT ST., RM. 110, HONOLULU, HAWAII 96813 FAX: (808) 531-8243

ANNOUNCEMENT AND AGENDA

GEOTHERMAL PROGRAM PLANNING WORKSHOP

DBED wishes to inform you of its planned two day Geothermal Program Planning Workshop scheduled to be held in Honolulu on November 20 and 21, 1990 at the Ala Moana Hotel-Ramada Renaissance.

The purposes of the workshop will be:

1. To assess where the geothermal program is now and where geothermal fits in the overall energy picture; to review issues affecting the program.
2. To obtain input from State department heads and key personnel involved in geothermal matters on future priorities, needs, opportunities, and program direction.
3. To discuss needed and proposed legislation.
4. To receive status reports and input from involved private consultants, County officials, and developer representatives.
5. To develop recommendations for submission to the Governor.
6. To provide an opportunity for involved State department heads and involved key personnel to inspect the SOH drilling sites, commercial drilling and plant sites, and the Puna Geothermal Research Center.

PARTICIPANTS

The following persons are asked to attend the full Workshop:

DBED: Roger Ulveling; Les Matsubara; Maurice Kaya; Dean Anderson; Gerald Lesperance; Michelle Wong-Wilson

Governor's Office: Susumu Ono; Gerald Demello

DLNR: William Paty; Manabu Tagamori; Dean Nakano; Janet Swift

DOH: Dr. John Lewin; Dr. Bruce Anderson; Paul Aki; Willy Nagamine

Governor's Advisory Board: Chairman or designated representative

- HIG: Dr. Donald Thomas
- B & F: Yukio Takemoto; Bob Takushi
- OSP: Harold Masumoto

The following persons will be invited to provide presentations on their respective programs for consideration by the State planning team.

- NELH: Clare Hachmuth
- COUNTY: Planning Director or designated representative
- HNEI: Dr. Harry Olson
- HECO: Rick McQuain
- PGV: Maurice Richard
- True/Mid-Pac GV: Allan Kawada or Rod Moss

The following will be available as resource persons to the State planning team:

- ERCE: Frank Kingery
- COMPAC: Steve Okino; Doug Carlson

SCHEDULE AND AGENDA:

Tuesday, November 20

1:30 PM Convene at the Carnation Room.

1:30 PM - 2:15 PM

Opening remarks by Roger Ulveling and Susumu Ono. Discussion of the present status of the State's geothermal program and where geothermal fits in the overall energy picture. Discussion of issues. Review of work in progress, active consulting contracts, funding sources and levels, State agency roles and relationships, Federal and County involvement, private sector activities, program objectives, strengths and weaknesses. Establish future direction.

2:15 PM - 3 PM

Presentation by DLNR on the status of regulation (asset fund, resource management, monitoring and enforcement, cross-training of State agency field personnel, etc.) Discussion of needs and objectives. Establish future direction.

3 PM - 3:45 PM

Presentation by DOH on the status of regulation (air quality, U.I.C., noise, etc). Discussion of needs and objectives. Establish future direction.

3:45 PM - 4:15 PM

Presentation by Harry Olson on the status of the SOH Program.

4:15 PM - 4:45 PM

Presentation by Rick McQuain on the status of consortium negotiations and HECO's planning work on the cable/geothermal project. Questions and answers.

Wednesday, November 21, 1990

8 AM - 8:30 AM

Convene at the Pakalana Room. Coffee and doughnuts.

8:30 AM - 9 AM

Presentation by Frank Kingery on the status of the cable/geothermal project master planning effort. Questions and answers.

9 AM - 9:30 AM

Presentation by Maurice Richard on the status of the Puna Geothermal Venture project.

9:30 AM - 10 AM

Presentation by Allan Kawada or Rod Moss on the status of the True/Mid Pacific Geothermal Venture project.

10 AM - 10:15 AM BREAK

10:15 AM - 10:30 AM

Presentation by Clare Hachmuth on the status of the Puna Research Center.

10:30 AM - 11:30 AM

Presentation by Duane Kanuha on the role of the County in geothermal exploration, development, and regulation. Discussion.

11:30 AM - NOON

Presentation by Michelle Wong-Wilson on community problems including local opposition and active litigation. Discussion.

NOON Lunch in the Anthurium Room.

1:30 PM - 3 PM

Workshop to formulate recommendations for consideration by the Governor as well as legislation to be introduced in the 1991 session.

3 PM - 3:15 PM BREAK

3:15 PM - 4:30 PM

Summary of Conference Findings and Achievements and Closing Remarks by Roger Ulveling and Susumu Ono.

WORKSHOP COORDINATION; CONFIRMATION OF ATTENDANCE.

Participants are asked to notify DBED'S Geothermal Office (586-2353) of their plans to attend the Workshop.

DBED will prepare working papers to facilitate discussion of issues during the Workshop. Participants are encouraged to come prepared with policy suggestions, priorities, possible legislation, etc.

DRA:novoconf.mem

GEOTHERMAL PROGRAM PLANNING WORKSHOP

DISCUSSION PAPER

November 19, 1990

TOPIC: GEOTHERMAL/CABLE CONSORTIUM SELECTION

Background

The HECO-led process to select a geothermal/cable consortium and to negotiate a contract by the end of 1990 has been significantly delayed, causing slippage in the drive to reduce the State's dependence on oil and fossil fuels for electricity generation.

The consortia ranked first and second best qualified to undertake the project have both had managing/major partners who have withdrawn or have indicated they may withdraw.

Discussion

An update is needed from HECO with regard to what steps are being taken to select a qualified consortia to pursue the project. Slippage in the selection process is causing problems for the State, as follows:

- * Without a consortium there is no clear definition of the financial support that may be required of the State. That definition is needed so that appropriate legislation or budget requests can be submitted during the 1991 session of the Sixteenth Legislature. Since significant new legislation and budget requests might be required, failure to act now could delay legislative considerations for the project until the Seventeenth Legislature, in 1993

- * Without a consortium, any State strategy developed now for a geothermal resource verification and characterization program to stimulate and complement private efforts, will, at best be tentative. It is important that the consortium be selected soon so that it can participate in devising a regional exploration strategy.

- * A framework is in place for a consolidated geothermal/cable permitting process. Valuable momentum will be lost if a consortium is not in place soon to initiate the permit application.

Consideration should be given to convening a meeting of the RFP Steering Committee in the near future to review with HECO the status of consortium selection and to suggest ways to finalize the process.

GOL:consorti.doc

GEOTHERMAL PROGRAM PLANNING WORKSHOP

DISCUSSION PAPER

November 19, 1990

TOPIC: PUBLIC ENHANCEMENT OF PROJECT FINANCES/ECONOMICS

Issue:

Should the State enhance the financing from public sources and/or offering incentives to improve the economics of the large-scale geothermal/inter-island cable project, if enhancing is needed?

Status/Background:

Prior to the Persian Gulf crisis which escalated oil prices, the international consortia that responded to HECO's RFP for the large scale geothermal/inter-island cable project indicated that the project was, at best, marginally economic. The consortia indicated that the cable system, which adds over \$500 million (1989 \$), was the reason for the questionable economics. The consortia also indicated that, although the federal and state-funded Hawaii Deep Water Cable Program had demonstrated the technical feasibility of the cable system, the finance community would still view this element of the project as one with considerable risk. The consortia almost unanimously indicated that some degree of State participation would be necessary.

b:\PROJFIN

GEOTHERMAL PROGRAM PLANNING WORKSHOP

DISCUSSION PAPER

November 19, 1990

TOPIC: GEOTHERMAL OUTREACH PROGRAM

Question

Has the geothermal program been effectively presented to Hawaii's residents, particularly those who may be most affected?

Background

Prior to about 1988, the State Government and geothermal developers provided, through the Geothermal Advisory Committee and frequent seminars, regular forums for reviewing the status and presenting future plans for the program. More importantly, they provided an opportunity for concerned residents to ask questions and to discuss issues. There was an effort by DBED and the developers to talk with, rather than at, the concerned residents. To be sure, some residents totally opposed geothermal, but many others had concerns and wanted them addressed. A few of the concerned but not opposed residents wanted to be part of the decision-making process. In some cases the extent to which they wanted to be part of decision-making was not practicable, and in some cases it seemed they wanted authority without responsibility.

An effort was made in 1987/88 to have the County Planning Department or Research and Development Department sponsor the Geothermal Advisory Committee, because some County residents and administration officials felt the Committee was too oriented toward Oahu interests (even though DBED sponsored attendance by community representatives, held open meetings, and mailed minutes and meeting notices to anyone who wanted to be on the mailing list). The County administration was less than enthusiastic about sponsoring the committee, while the developers viewed the committee meetings as a "can lose, can't win" situation for them because some community people would give developer remarks out of context to the media. As a result of problems such as these the GAC became inactive.

A 1988/89 mediated "roundtable", involving representatives of the Puna Community Council, Pele Defense Fund, and other environmental groups, was relatively successful in addressing issues but was suspended for basically two reasons: (1) the community wanted to discuss alternatives to geothermal; and (2) all the geothermal issues had been discussed (but not always resolved). Factors contributing to the failure of the roundtable were: (1) lack of regular follow-up on recommended actions; (2) failure of

PCC officers to pass information on to community members; and (3) unwillingness of some community representatives to accept ground rules. Interestingly, some important community representatives who professed they were not against geothermal per se during the roundtable did voice anti-geothermal sentiments consistently after the roundtable was suspended.

There have been changes in the organizations as well as the spokespersons for the organizations expressing opposition or serious reservations about geothermal. For instance, most of the persons involved in the 1982/83 Puna Speaks trial and the contested case hearings of the mid-1980's are no longer vocal. On the other hand, most of the currently active organizations, including Pele Defense Fund (which was founded in 1986), Puna Community Council, and Rain Forest Action Network (which only entered the Hawaii picture in 1989), didn't exist or were not anti-geothermal activists until the last half of the decade.

Discussion

There is a small hard-core anti-geothermal group that cannot be won over. The best the State can hope to do is to limit the extent to which they disseminate misinformation. Debating forums involving hard-core anti-geothermal groups are unproductive.

Outreach efforts are best focused on: (1) neutral and/or concerned residents who live in Puna; (2) Hawaii County Administration and Council; (3) local and national environmental groups; (4) key legislators; and (5) those who will benefit from large-scale development - Oahu, and possibly Maui, residents and businesses.

Some outreach efforts can be conducted by DBED (or State) employees, even if these are not permanent employees, rather than by consultants. Consultants are needed to design and handle logistics.

Ideas for Consideration

Ensure people representing themselves as group spokespersons are, in fact, true spokespersons.

Ensure intergroup agreements are documented.

Consider re-establishing roundtable or comparable mediated forum for regular discussion of issues.

Encourage a coalition(s) between local private alternate energy groups, including but not limited to geothermal and non-radical environmental groups. Might be best if government was not a participant.

Determine if present DBED Hilo staff has capability to conduct outreach with Puna residents. If not, consider augmenting the staff at least temporarily.

DLNR, DBED, and perhaps the County Administration might consider developing a regular periodic mediated forum, like the roundtable, to discuss issues with Puna residents and environmental groups not intractably opposed to any geothermal development.

DLNR, DOH, and DBED might brief the new County Administration as soon as practicable. A briefing could also be held with the County Council.

DLNR, DOH and DBED might brief the Senate and, separately, House and Senate Energy Committees. Consider briefings to majority policy committees and/or House/Senate leadership.

DBED visit Hawaii delegation/staffs in Washington early 1991.

DBED aggressively set up speakers bureau and seek out opportunities to address business groups and service organizations such as Rotary Clubs.

DBED have consultant design and fabricate a "static" display that can be moved between islands and used at shopping malls, fairs, etc. Although basically static, design and build capability for interactive components, such as a computerized geothermal data base.

At Thursday Geothermal Information Task Force meeting, DBED ask Pro-Geothermal Alliance to initiate, with other renewable energy proponents (HERS, a responsible hydro developer, AMFAC Energy, a wind developer) to develop a renewable energy/environmental "coalition" with appropriate environmental groups such as Sierra Club, Natural Resources Defense Council, Greenpeace Hawaii, and Thousand Friends.

GOL:outreach.mem

GEOHERMAL PROGRAM PLANNING WORKSHOP

DISCUSSION PAPER

November 19, 1990

TOPIC: STATE MANAGEMENT STRUCTURES FOR THE GEOHERMAL\CABLE PROJECT

Background

Previous planning documents (including G. Sumida's), consultant reports (including ENEL's), and respondents to the consortium RFP, among others, have argued that a dedicated State authority is needed to develop and manage the large-scale geothermal/cable project. Legislation to establish such an authority was proposed, but not enacted, in 1988.

Discussion

1. Full-Privatization Scenario

There are two basic scenarios under which the large-scale geothermal/cable project might proceed. The first is referred to for discussion purposes as the 'full-privatization scenario', in which a private consortium finances, constructs, owns, and operates the project. The role of the State in the full-privatization scenario is basically two-fold, involving on the one hand promotional and catalytic activities, and on the other hand regulatory functions. Promotional and catalytic activities include: funding exploration and resource studies; sponsoring legislation; spearheading and coordinating master plans and environmental studies; conducting public informational meetings; undertaking community awareness campaigns, etc. These activities are presently being undertaken by DBED. Regulatory functions include promulgating rules; monitoring geothermal construction, drilling, and operations; and enforcing rules and laws. These functions are presently shared primarily among DLNR, DOH, and Hawaii County.

The involvement of a private consortium headed by a strong company is highly desirable and probably essential to the success of the large-scale geothermal/cable project. It is especially important to raising major overall project financing from private sources. It is perhaps the only scenario which is politically feasible at the present time.

Recommended State Management Structure for the Full Privatization Scenario

The state management structure appropriate to the full privatization scenario must take into account both the promotional/catalytic role of DBED and the regulatory role of DLNR, DOH, and other State agencies. DBED's mission is to foster

alternative energy development so as to reduce the State's overwhelming dependence on oil and other fossil fuels. The mission of DLNR and DOH is to protect the environment and natural resources of Hawaii as well as the health and well-being of its citizens.

The drive for energy independence involves difficult decisions, tradeoffs among competing interests and objectives, and constant dispute resolution. This suggests the need for a unified management structure. A structure which might be appropriate to the full-privatization scenario is one modeled after the existing Commission on Water Resource Management ("Water Commission"). For the purpose of this discussion the proposed commission is referred to as the "Alternative Energy Development Commission" ("AEDC"). Like the Water Commission, the AEDC might consist of six members, with three members being appointed by the Governor subject to confirmation by the Senate. The other three members might be the directors of DBED, DLNR, and DOH, respectively, with the chairperson being the director of DBED, because DBED is the only agency whose mission is the development of alternative energy. The proposed commission might be conceived more broadly as an alternative energy development commission rather than more narrowly as a geothermal development commission in the interest of flexibility and balance. The commission's purpose would be to develop the renewable resources of the state rather than to develop geothermal energy to the exclusion of other worthy projects. Part and parcel of the commission's mandate would be the promotion of conservation and the sponsoring of meritorious conservation projects.

The legislative bill establishing the AEDC would articulate and define the State's objectives and policies relative to alternative energy development, would grant the AEDC broad authority and discretion to pursue these objectives, and would set forth rules and procedures for streamlining the processing of permit applications for alternative energy projects deemed important and necessary by the AEDC.

2. State Development Authority Scenario

The second basic scenario under which the large-scale geothermal/cable project might proceed is referred to for discussion purposes as the 'state development authority scenario'.

Without the involvement of a private consortium the future of large-scale geothermal development would be seriously compromised. If it were to proceed at all based on private initiative it would probably be in piecemeal fashion over a very long period of time. In order for the State to meet its objective of developing alternative sources of energy expeditiously, a state development authority, with powers and responsibilities substantially greater than the AEDC, would be required.

The proposed state development authority would be created and funded by the Legislature. It could be established solely for the purpose of developing the geothermal/cable project, or its authority could extend to alternate energy development in general. In either case, it would likely face greater opposition from environmentalists and citizens concerned about government spending than would the AEDC. Until or unless a new 'energy crisis' is experienced, its political acceptability is questionable. Without such an entity in place, however, it is difficult to envision how a project as complex and large as the proposed geothermal/cable project could be advanced.

A key element of the state development authority scenario is a consolidated permitting process to facilitate the development and financing of the geothermal/cable project by coordinating the multiple state and county agency jurisdictions for approvals presently required, thereby reducing the time and risk capital needed to permit and develop the project. A step in this direction was provided by the legislature in 1988, when it enacted a bill designating DLNR as the "lead agency", establishing certain streamlined permitting procedures, and providing guidelines for interagency cooperation. The extent to which greater permit consolidation and streamlining is needed is an important issue which needs to be addressed.

Recommended State Management Structure for the State Development Authority Scenario

Since it would be the prime mover for developing the geothermal/cable project and perhaps other alternative energy projects, the proposed state development authority would assume much greater responsibilities than would be assumed by the proposed AEDC. It would need to be a large, public corporation structured perhaps along the lines of ENEL, the National Power Authority of Italy, the entity which is solely responsible for developing and operating geothermal facilities in Italy. It would require a board of directors, perhaps appointed by the Governor and a full-time management organization headed by a chief executive officer. Management divisions reporting to the CEO might include: (1) exploration/development; (2) operations; (3) environmental/permitting; (4) finance/accounting; and (5) construction/engineering. A substantial number of technical and managerial personnel would be required. ENEL has indicated that minimum staffing would consist of approximately 50 to 100 persons.

DRA:mgmt.mem

GEOHERMAL PROGRAM PLANNING WORKSHOP

DISCUSSION PAPER

November 19, 1990

TOPIC: ~~GEOHERMAL MONITORING AND ENFORCEMENT~~

Major Premise

~~There is a need to coordinate, particularly in the field, monitoring and enforcement of geothermal activities to ensure compliance with regulations in a way which avoids duplication of effort on the part of responsible agencies and waste of agency resources.~~

Background

~~The three major regulating agencies for geothermal are DLNR, DOH, and the County Planning Department.~~

~~During the 1990s there is likely to be concurrent geothermal activity at more than one site.~~

~~Somewhat different personnel skills and equipment are required for each project phase: exploration, construction, and operations.~~

~~Geology, engineering (mechanical/civil/chemical), archaeology, biology, and pollution control are the primary disciplines requiring expertise among regulators. Except for engineering expertise in their public works departments, the County may not have specialists in these fields or related equipment in-house. Expertise in these areas is available in the Honolulu offices of DLNR or DOH.~~

Discussion

~~One way to avoid or reduce interagency turf problems is to involve personnel from the various agencies in designing the coordinated monitoring/enforcement program.~~

~~Consideration should be given to having Sus Ono, the Governor's Geothermal Coordinator, and appropriate top management personnel of DLNR and DOH, meet with the County Planning Director to develop a framework for consolidated geothermal monitoring and enforcement. A subsequent meeting(s) involving appropriate DLNR, DOH, and County representatives could develop a comprehensive consolidated monitoring and enforcement plan, a memorandum of understanding regarding interagency responsibility sharing, any needed legislation, and appropriate CIP/GF budgets, addressing among other things any new staffing and equipment requirements.~~

~~Cross-training \ Shared Responsibility among Agencies~~

The aforementioned memorandum of understanding among involved agencies would clarify departmental lines of authority, spelling out the functions to be shared and detailing the objectives of cross-training / responsibility-sharing. It would appear that cross-training personnel for field activities would be relatively straightforward, while sharing administrative and enforcement responsibilities might be more difficult to implement.

It should be possible to cross-train individuals of different departments and having different technical backgrounds to perform field inspections, collect monitoring data, etc. A DLNR field technician, for example, could be trained to collect air quality data. While doing this work, he would be responsible to the DOH administrator. It might be more problematical to cross-train personnel to perform administrative work such as compiling data, submitting reports, and carrying out enforcement duties, because each agency has its own statutory responsibilities and authority.

The primary objective of cross-training / responsibility-sharing would be to make more efficient use of technicians' time, avoid duplication of effort (e.g. overlapping field inspections), and thereby to save money. A secondary objective would be to insure that field inspections and monitoring work are performed regularly, consistently, and with care. The goal would be to enable field personnel to focus greater attention on and to prioritize geothermal field work relative to their other work.

Self-policing in Compliance Monitoring

Consideration should be given to implementing a program of 'self-policing' on the part of each developer/operator. To the extent that this is not required in existing permits, it may still be possible to implement a 'self-policing' program, limited or comprehensive, because the County, the State, and the developer/operator may find such a program mutually advantageous.

There are self-policing features in the PGV Geothermal Resources Permit sections dealing with noise, air quality, and groundwater protection. Basically, these sections call for the permittee to perform monitoring functions and, where applicable, to have tests and analysis performed by a laboratory chosen by the permittee subject to the approval of the County Planning Director. The permittee is required to report test results periodically to the Planning Director.

The goals of a self-policing program would be: (1) to minimize the involvement of State and County regulatory personnel in monitoring; (2) to minimize the cost to the State and County of hiring experts, purchasing equipment, and conducting tests directly; and (3) to allow the permittee some flexibility in the

performance of monitoring activities, while holding him to strict standards of compliance. A cooperative self-policing agreement might be voluntarily negotiated between the State and the developer/operator, outside of existing permit requirements, to cover construction and drilling operations, as well as plant operations, with respect to noise, air quality, groundwater monitoring, revegetation, etc.

One way to avoid the inherent conflict in having the developer/operator monitor its compliance with regulations is to have the developer/operator agree to engage, on a continuous basis, the services of an independent environmental planning firm acceptable to the County and State with demonstrated capability and a proven track record in the types of monitoring required. Firms considered acceptable should have a history of doing impartial, high-quality scientific work for clients including environmental organizations, government agencies, and private companies.

Under the voluntary self-policing agreement, the permittee would agree to have the environmental planning firm develop a comprehensive environmental planning document addressing all of the action items covered by the permit conditions and/or mentioned in the applicable environmental document (EIS or EA) as being appropriate or necessary. The permittee would agree that one or more qualified representatives of the environmental planning firm would be on-site during activities which could affect the environment, including ground disturbance, pipe ventings, well-casings, etc.

A well-designed self-policing agreement would allow the State and County to limit their monitoring and enforcement activities to random checks and to reviewing information provided periodically by the environmental planning firm. The environmental planning firm, not the developer, would prepare reports and provide data. The integrity and reputation of the environmental planning firm would be on the line, therefore reports could be expected to be objective and technically accurate.

A self-policing program has potential advantages to the developer/operator, in spite of the greater cost involved, which should make it possible to enter into a voluntary agreement: (1) reduced risk of inadvertently causing environmental damage, which could force a shut-down, an enforcement action, or a public relations disaster; (2) improved County and/or State relations and communications; and (3) the opportunity for company personnel and contractors to focus on business and production-related activities rather than on environmental and compliance matters, which are not usually their area of interest or competence. The environmental planning firm would focus on environmental protection and monitoring.

DRA:enfrc.mem

GEOHERMAL PROGRAM PLANNING WORKSHOP

DISCUSSION PAPER

November 19, 1990

TOPIC: ~~GEOHERMAL ASSET FUND~~

Questions:

~~What positions should the State take concerning the Geothermal Asset Fund:~~

- ~~1. Relative to eligibility criteria? For example, who and under what conditions would parties be able to seek relief from the asset fund?~~
- ~~2. Should the State Administration submit legislation to the 1991 Legislature seeking authorization to divert HGP-A well steam sale proceeds into the asset fund? If so, should there be conditions attached to the authorization? For example, should some of the proceeds be retained by the State to help defray geothermal monitoring and regulatory expenses?~~
- ~~3. Should attempts be made to have all geothermal developers, whether operating under State or county permits, contribute to the asset fund? Currently only PGV is subjected to this requirement.~~

Background/Discussion:

~~The Hawaii County Planning Commissions on September 19, 1989, approved Puna Geothermal Venture's (PGV) Geothermal Resource Permit Application to develop 25 MW of power in Kapoho. As part of this approval the Planning Commission attached 51 conditions, one of which requires the contribution of dollar amounts by PGV and the State into a "Geothermal Asset Fund."~~

~~The concept of an asset fund which is intended to provide relief to parties adversely impacted by geothermal development emerged from the mediation process related to the PGV application. The concept was brought to the attention of Governor Waihee during a meeting with a delegation of Puna residents and County officials.~~

~~The State's position as presented to the Planning Commission on September 19, 1989, was as follows:~~

- ~~1. We supported the creation of an asset fund.~~

2. The State's contribution to the asset fund was to come primarily from the net proceeds derived from the sale of steam from the HGP-A well. Should any other funds be used to pay the initial installment those sources were to be repaid from future steam sale revenues. This reimbursement arrangement was not adopted by the Planning Commission.
3. The County of Hawaii is to establish and administer the asset fund. The establishment of the fund would require the adoption of appropriate rules under Chapter 91, Hawaii Revised Statutes.

During the 1990 session the Legislature through Representative Andrews challenged the Administration's position on committing of HGP-A steam sale revenues without legislative authorization. To rectify the situation the Administration made proposals to the Legislature whereby short and long-term means of funding the asset fund could be established. These measures got full support in the Senate but the House did not pass the long-term funding authorization. Interestingly, representatives of the Puna Community Council testified against Senate Bill 2212, the bill that would have provided long-term financing to the asset fund.

The Legislature did provide means for the State to make it an initial payment of \$250,000 to the asset fund. This payment has been made to the County of Hawaii by the Department of Land and Natural Resources. PGV has also made its initial payment of \$60,000.

The County of Hawaii has not yet adopted rules for the asset fund thereby precluding expenditures of deposited funds.

There is a sense of urgency to addressing issues related to the asset fund since PGV has initiated site preparation work for drilling of wells and constructing of the power plant. These activities have already prompted certain Puna residents to raise questions on means to tap the asset fund, and to attempt to stop the PGV project because the asset fund has not been formally established.

c:ASSETFUN/wang



DEPARTMENT OF BUSINESS
AND ECONOMIC DEVELOPMENT

ENERGY DIVISION

335 Merchant Street, Room 110, Honolulu, Hawaii 96813
Telephone 548-4080

JOHN WAIHEE
GOVERNOR

ROGER A. ULVELING
DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

LESLIE S. MATSUBARA
DEPUTY DIRECTOR

Date: November 19, 1990

To: All Attendees of the Geothermal Program
Planning Workshop

From: Geothermal Project Office

 FYI
 As requested
 Please return
 Comment and return
 Please call re attached

There is a change of meeting rooms as follows:

November 20th, Tuesday	Plumeria Room
November 21st, Wednesday	Ilima Room
Lunch	Ilima Room



DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT

ENERGY DIVISION, 335 MERCHANT ST., RM. 110, HONOLULU, HAWAII 96813 FAX: (808) 531-5243

JOHN WAIHEE
GOVERNOR

ROGER A. ULVELING
DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

LESLIE S. MATSUBARA
DEPUTY DIRECTOR

ANNOUNCEMENT AND AGENDA

GEOHERMAL PROGRAM PLANNING WORKSHOP

DBED wishes to inform you of its planned two day Geothermal Program Planning Workshop scheduled to be held in Honolulu on November 20 and 21, 1990 at the Ala Moana Hotel-Ramada Renaissance.

The purposes of the workshop will be:

1. To assess where the geothermal program is now and where geothermal fits in the overall energy picture; to review issues affecting the program.
2. To obtain input from State department heads and key personnel involved in geothermal matters on future priorities, needs, opportunities, and program direction.
3. To discuss needed and proposed legislation.
4. To receive status reports and input from involved private consultants, County officials, and developer representatives.
5. To develop recommendations for submission to the Governor.
6. To provide an opportunity for involved State department heads and involved key personnel to inspect the SOH drilling sites, commercial drilling and plant sites, and the Puna Geothermal Research Center.

PARTICIPANTS

The following persons are asked to attend the full Workshop:

DBED: Roger Ulveling; Les Matsubara; Maurice Kaya; Dean Anderson; Gerald Lesperance; Michelle Wong-Wilson

Governor's Office: Susumu Ono; Gerald Demello

DLNR: William Paty; Manabu Tagamori; Dean Nakano; Janet Swift

DOH: Dr. John Lewin; Dr. Bruce Anderson; Paul Aki; Willy Nagamine

Governor's Advisory Board: Chairman or designated representative

HIG: Dr. Donald Thomas
B & F: Yukio Takemoto; Bob Takushi
OSP: Harold Masumoto

The following persons will be invited to provide presentations on their respective programs for consideration by the State planning team.

NELH: Clare Hachmuth
COUNTY: Planning Director or designated representative
HNEI: Dr. Harry Olson
HECO: Rick McQuain
PGV: Maurice Richard
True/Mid-Pac GV: Allan Kawada or Rod Moss

The following will be available as resource persons to the State planning team:

ERCE: Frank Kingery
COMPAC: Steve Okino; Doug Carlson

SCHEDULE AND AGENDA:

Tuesday, November 20

1:30 PM Convene at the Carnation Room.

1:30 PM - 2:15 PM

Opening remarks by Roger Ulveling and Susumu Ono. Discussion of the present status of the State's geothermal program and where geothermal fits in the overall energy picture. Discussion of issues. Review of work in progress, active consulting contracts, funding sources and levels, State agency roles and relationships, Federal and County involvement, private sector activities, program objectives, strengths and weaknesses. Establish future direction.

2:15 PM - 3 PM

Presentation by DLNR on the status of regulation (asset fund, resource management, monitoring and enforcement, cross-training of State agency field personnel, etc.) Discussion of needs and objectives. Establish future direction.

3 PM - 3:45 PM

Presentation by DOH on the status of regulation (air quality, U.I.C., noise, etc). Discussion of needs and objectives. Establish future direction.

3:45 PM - 4:15 PM

Presentation by Harry Olson on the status of the SOH Program.

4:15 PM - 4:45 PM

Presentation by Rick McQuain on the status of consortium negotiations and HECO's planning work on the cable/geothermal project. Questions and answers.

Wednesday, November 21, 1990

8 AM - 8:30 AM

Convene at the Pakalana Room. Coffee and doughnuts.

8:30 AM - 9 AM

Presentation by Frank Kingery on the status of the cable/geothermal project master planning effort. Questions and answers.

9 AM - 9:30 AM

Presentation by Maurice Richard on the status of the Puna Geothermal Venture project.

9:30 AM - 10 AM

Presentation by Allan Kawada or Rod Moss on the status of the True/Mid Pacific Geothermal Venture project.

10 AM - 10:15 AM BREAK

10:15 AM - 10:30 AM

Presentation by Clare Hachmuth on the status of the Puna Research Center.

10:30 AM - 11:30 AM

Presentation by Duane Kanuha on the role of the County in geothermal exploration, development, and regulation. Discussion.

11:30 AM - NOON

Presentation by Michelle Wong-Wilson on community problems including local opposition and active litigation. Discussion.

NOON Lunch in the Anthurium Room.

1:30 PM - 3 PM

Workshop to formulate recommendations for consideration by the Governor as well as legislation to be introduced in the 1991 session.

3 PM - 3:15 PM BREAK

3:15 PM - 4:30 PM

Summary of Conference Findings and Achievements and Closing Remarks by Roger Ulveling and Susumu Ono.

WORKSHOP COORDINATION; CONFIRMATION OF ATTENDANCE.

Participants are asked to notify DBED'S Geothermal Office (586-2353) of their plans to attend the Workshop.

DBED will prepare working papers to facilitate discussion of issues during the Workshop. Participants are encouraged to come prepared with policy suggestions, priorities, possible legislation, etc.

DRA:novconf.mem

Pau

20/WRM

AN OPEN LETTER TO GOVERNOR JOHN WAIHEE

October 25, 1990

Honorable John Waihee
Governor, State of Hawai'i
Hawai'i State Capitol
Honolulu, Hawai'i 96813

RECEIVED
OCT 29 11:15
STATE OF HAWAII

RECEIVED
90 NOV 13 AID: 37
DIV. OF WATER & LAND DEVELOPMENT

Dear Governor Waihee:

We are writing to express our extreme concern about the geothermal/cable project promoted by your administration. Given the extensive involvement of federal agencies and use of federal money, and the magnitude of environmental and cultural destruction posed by present and planned development activities, we call upon you to institute an immediate moratorium on all geothermal/cable project development activities. These activities include but are not limited to: the clearing of forest, verification and characterization of the geothermal resource, and the construction of infrastructure, such as roads and holding ponds.

We join Representative Patsy Mink in requesting that your administration abide by federal law as set out in the National Environmental Policy Act of 1969 (NEPA) and halt all geothermal/cable activities until a comprehensive federal Environmental Impact Statement (EIS) has been completed on the entire geothermal/cable project. As you are aware, the Sierra Club Legal Defense Fund has filed suit on behalf of the Blue Ocean Preservation Society, Greenpeace-Hawai'i, and Sierra Club against federal government agencies for not complying with their NEPA obligations. The suit is set for trial on January 8, 1991.

Specifically, the activities of True/Mid-Pacific, Ormat/Puna Geothermal Ventures, HGP-A, and the Scientific Observation Hole (SOH) program together with Pirelli's development of an inter-island cable constitute the starting point for the largest development projects ever undertaken in Hawai'i, with costs projected between \$2 and \$4 billion. This development is funded, planned guided and will be permitted by many federal agencies as well as the state. To date, federal support totals some forty million dollars, including more than \$27 million for cable research and development and \$10 million for the HGP-A demonstration plant. This figure does not include the \$5 million appropriated for Fiscal Year 1991 for verification and characterization of the geothermal resource on the Big Island.

Open Letter For Geothermal Moratorium / 10-25-90 / 1

TO: Director, SUS Ono
 PLEASE COORDINATE with DBERT, DLNR

- FOR:
- Comment/Recommendation (required)
 - Appropriate attention
 - Direct reply (cc/bcc: Governor)
 - Your Information/file
 - Draft reply for Governor's signature
 - Follow up/report
 - Submit copy of response (if any)
 - Keep enclosure(s)
 - Return enclosure(s)
 - Other

SAF
DUE seven working days from OCT 29 1990
if delay is encountered in meeting susense

552

In addition, we call upon the state to condition the moratorium on the completion of the Integrated Resource Planning (IRP) process. The IRP was inaugurated this year to assess Hawai'i's least-cost energy options. It does not make economic sense to promote the geothermal/cable project which will require greater energy consumption, not less, before Hawai'i assesses its longterm energy needs and least-cost options to meet those needs.

It is important to note recent developments in the past year pertinent to the geothermal/cable project:

1. You have stated in DOE hearings that the inter-island cable must be proven cost-effective and that energy efficient technologies would be supported on an equal basis with geothermal energy development. However, your request for federal funding for 1991 did not include efficiency or conservation projects.
2. In 1990, the state began the IRP process to assess its least cost energy options. However, simultaneously, the state has aggressively promoted the geothermal/cable project which would promote greater energy consumption, not less. In states like California and Nevada, least-cost energy policies have demonstrated conservation to be the least expensive and most efficient option.
3. Native Hawaiians with the Pele Defense Fund filed suit against the State's Department of Land and Natural Resources for illegally removing the Wao Kele O Puna forest from its ceded land and Natural Area Reserve status. Native Hawaiians have been denied access to Wao Kele O Puna Forest for the practice of their traditional cultural and religious rites, as guaranteed by state and federal constitutions.
4. Hawai'i's Department of Land and Natural Resources recently confirmed the existence of an extensive burial lava tube beneath the Wao Kele O Puna Forest.
5. The Hawai'i House of Representatives passed a resolution opposing additional state support or promotion of geothermal development until "questions regarding the social/environmental, logistical, technical, and economic aspects of these projects have been answered."
6. In September of this year forty-eight U.S. Representatives expressed opposition to federal funding for the exploration and characterization of the geothermal resource.
7. The California State Legislature passed a resolution in support of the protection of Wao Kele O Puna rainforest and in opposition to federal funding for the cable project.

It is our understanding that SOH and True/Mid-Pacific, upon finding "dry holes" in their first drill sites, are literally poised to begin clearing more forest for additional drill sites and connecting roads. This is totally unacceptable. There is no justification for further development activities to continue given the federal EIS and IRP have not been completed.

You now face a choice. Proceeding with the development of geothermal and cable activities is in violation of federal law and would continue the destruction of the United States' most significant lowland tropical rainforest. However, there is another option. You can choose to institute a total moratorium on all geothermal and cable activities. This is the only lawful, environmentally and culturally protective course available to your administration.

Thank you for your immediate consideration of this matter. We look forward to your timely response. Your reply may be addressed to the Pele Defense Fund / P.O. Box 404 / Volcano, Hawai'i 96785, fax: 935-3551; phone: 935-1663.

Respectfully yours,

Hawai'i Organizations

Big Island Rainforest Action Group
Blue Ocean Preservation Society
Citizens for Responsible Energy
Development With Aloha 'Aina
Living Indigenous Forest Ecosystems
(L.I.F.E.)
Maui Green Coalition
Maui Tomorrow
Pele Defense Fund
O'ahu Rainforest Action Group
Sierra Club-Hawai'i Chapter

National Organizations

Environmental Action
Friends of the Earth
Greenpeace
National Parks and
Conservation
Association
Rainforest Action
Network
Rainforest Alliance
Sierra Club

c.c. Senator Daniel Inouye
Senator Daniel Akaka
Congresswoman Patsy Mink
Congresswoman Pat Saiki
G. Bryan Harry, National Park Service
Colonel F.S. Wanner, U.S. Army Corps of Engineers
Admiral David E. Jeremiah, CINCPAC Pacific Fleet
Rear Admiral William Kozlovsky, U.S. Coast Guard
William Meyer, U.S.G.S.
Dr. Allan Marmelstein, U.S. Fish & Wildlife Service
John Naughton, National Marine Fisheries Service
John W. Shupe, U.S.D.O.E.
Vicki Tshuhako, E.P.A.

PATSY T. MINK
SECOND DISTRICT, HAWAII

WASHINGTON OFFICE
1725 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON DC 20515-1102
(202) 225-4808

Congress of the United States
House of Representatives
Washington, DC 20515-1102

DISTRICT OFFICE
HONOLULU
SUITE 8104 FEDERAL BUILDING
300 ALA MOANA BLVD
HONOLULU HI 96860-4977
(808) 541-1888

STATEMENT BY THE HONORABLE PATSY T. MINK

THE DEVELOPMENT OF GEOTHERMAL ENERGY IN HAWAII

Washington, D.C.
October 24, 1990

As an island state, Hawaii depends on imported oil making it vulnerable to supply disruptions or price fluctuations. As we seek ways to lessen our dependence on imported oil and improve the energy security of our island state, Hawaii must develop an energy strategy that balances our need for energy and our desire to protect our unique environment.

The State Public Utilities Commission started to do this through the Integrated Planning Process in January of 1990. I commend the Commission for working to provide a comprehensive plan which will examine all energy supply and demand options, including geothermal and energy conservation.

Geothermal energy may have potential to make a significant contribution to Hawaii's energy needs. However, the decision to begin any geothermal project should be made in light of such things as cost, economic benefits, and the impact on the environment.

I believe that Congress has prematurely appropriated funds to develop geothermal resources on the island of Hawaii without knowledge of the full environmental impact. In light of this recent action, I join with the Sierra Club and others in calling for a moratorium on further development and the withholding of federal funds until a full environmental impact statement is completed. The environmental impact statement should take into account the impacts of the proposed exploratory drilling, as well as the commercial production of geothermal energy. In any case, should an environmental impact statement show no adverse effects, I would support the development of geothermal energy for the island of Hawaii only.

GEOHERMAL PROGRAM PLANNING WORKSHOP

DISCUSSION PAPER

November 19, 1990

This paper responds to the Open Letter to Governor John Waihee for Geothermal Moratorium, dated 10-25-90. (attached), which was submitted by the Pele Defense Fund and other environmental organizations. For legal reasons it was decided not to actually send this response to the Pele Defense Fund. This paper discusses the position of the Waihee administration with regard to resource verification and characterization as well as to planning of the geothermal/cable project. It also summarizes the record of the Administration in providing appropriate environmental documentation for prior geothermal initiatives.

The open letter conveys the mistaken impression that the Waihee Administration has made an irrevocable commitment to the development of the largescale geothermal/cable project, which in the view of the signatory organizations portends massive "environmental and cultural destruction". No such commitment has been made. The Administration has proceeded cautiously to support sufficient geothermal development to serve the near term requirements of the Big Island for additional baseload generation. The 25 megawatt facility presently under construction is being financed entirely from private sources, and it will defer the need for HELCO to build a new fossil fuel burning plant.

The Administration is supporting a carefully conceived program to verify and characterize the potential geothermal resource and to carry out the appropriate master planning and environmental studies for the proposed geothermal/cable project. No decision to proceed with the development of the large-scale project will be made until all of the facts are in and until the public is afforded ample opportunity to provide input. No attempt has been on the part of the Administration to shorten or circumvent the environmental review process. Preparation of a full environmental impact statement, one in full compliance with NEPA requirements, has been part of the master planning work scope and budget since February, 1990.

Efforts to promote geothermal development have not been made to the exclusion or detriment of conservation initiatives. The Administration agrees that conservation, to the extent that it can be achieved, is the least expensive and most efficient option. The State's highest energy priority is to foster conservation. However, there are limits to the extent to which the State can mandate conservation; energy demand is forecast by the State and utilities to increase irrespective of progress in conservation. If contingency plans are not made now for meeting increased energy demand in the future, the State's public utilities will again be required to meet such demand by adding fossil-fuel burning

capacity, which is highly undesirable from environmental and economic perspectives. Even with aggressive implementation of conservation measures, the State's almost total dependence on imported petroleum will remain undiminished. Among the available alternatives, geothermal energy has the best near-term potential for reducing this over-dependence.

The Administration is committed to integrated resources planning (IRP). In January, 1990, the State PUC issued an order requiring the public utilities to utilize IRP in their planning processes. However, it will be several years before the effect of IRP planning will be known, and there is no certainty that IRP planning in and of itself will avoid the need for the utilities to expand generating capacity to meet increased energy demand.

In response to the reference in the open letter to alleged "illegal... removing of the Wao Kele O Puna forest from its ceded land and Natural Area Reserve Status", it may be said that the land exchange which prompted the lawsuit was initially proposed by local residents and environmental groups and was supported by the National Park Service as a means of preserving the more pristine Kahauale'a forest while restricting geothermal exploration and development to the less pristine Wao Kele 'O Puna forest. The exchange involved no loss of land rights for Hawaiians. Ceded land rights were transferred in the land exchange and now reside with the Kahauale'a lands. Native gathering rights within the Wao Kele ahupua'a continue for residents of the ahupua'a. The only areas restricted to access are those actually under development, which are estimated to not exceed 300 acres. The rest of the forest (26,700 acres) will remain open to to ahupua'a residents.

In response to the demand for an immediate moratorium on all geothermal/cable project development activities, no useful purpose would be served by imposing such a moratorium at this time. It would not affect the Puna Geothermal Venture project, which is fully permitted and proceeding with construction. This is the only geothermal activity under construction at this time. The resource verification and characterization program involves no construction and entails very little environmental impact. The State-sponsored Scientific Observation Hole #1 (SOH-1) is being drilled on fallow agricultural land, and the drill site occupies less than one third acre. The planned SOH-2 drill site is likewise on fallow agricultural land and will involve no new road construction. SOH-2 will be located in a section of the Wao Kele O Puna Forest which has been invaded by exotic plant species, notably strawberry guava. The drill pad and access road will be built in accordance with Department of Land and Natural Resources requirements to minimize impacts. Before grading and grubbing can begin, the area will be surveyed for the presence of medicinal herbs and cultural resources, including lava tubes where ancient artifacts may be buried. True/Mid-Pacific's exploratory drilling will be done along the existing access road; an extensive plant survey will be made

prior to any clearing.

Verification and characterization of the geothermal resource is a vital component, but only one element, of the State's overall energy resource planning, which includes conservation and investigation of other renewable technologies, including solar thermal, photovoltaics, wind, biomass, ocean thermal energy conversion, hydroelectricity, and hydro pumped storage. It is the Administration's policy to take a balanced and integrated approach to energy resource development and utilization. Among the technologies potentially available, geothermal and biomass are regarded as unique in being proven, commercially viable, and able to provide continuous, firm energy. It would be unwise to neglect their potential for meeting part of Hawaii's energy needs.

It is not appropriate at this time for the State to respond to the accusation that federal agencies have failed to fully comply with NEPA requirements, since that is the subject of the lawsuit referred to in the open letter. However, it is a matter of record that all State requirements have been fulfilled and, in some cases, exceeded. The State has complied with the letter and spirit of NEPA and with its own environmental laws and regulations by requiring appropriate environmental review and documentation for all past and present geothermal activities, including permitting actions. Each discrete geothermal/inter-island cable activity to date has been preceded by an environmental assessment (EA) and/or environmental impact statement (EIS) even though, in some cases, none was required.

A complete list of geothermal activities and the environmental document prepared in each case is provided below.

Environmental Documents Prepared in Conjunction with State and Federally-Sponsored Geothermal Activities

- * In 1978, the State completed an EIS for the Hawaii Geothermal Research Station, a proposed research and development project, at the HGP-A geothermal well site in the lower Kilauea East Rift Zone (KERZ).
- * In 1979, the U.S. Department of Energy, prior to providing federal funds for the Hawaii Geothermal Research Station, conducted an EA in compliance with the National Environmental Protection Act (NEPA), which resulted in a finding of no significant impact (FONSI). In 1983, after the facility was completed, the U.S. District Court, in the "Puna Speaks" trial, found that the requirements of NEPA were satisfied in full. The power plant was permanently closed down in 1989.
- * In 1982, the Board of Land and Natural Resources (BLNR) accepted an EIS for a proposed 250 MW commercial geothermal project in Kahauale'a, within the upper KERZ conservation district, by True/Mid-Pacific Geothermal

Venture. In 1986, BLNR accepted a revised EIS from the developer when the proposed project was to be relocated to the middle KERZ and reduced to 100 MW. Exploration was initiated by the developer in November 1989 and to date, no construction activity has taken place.

- * In 1983, Act 296 required that BLNR make a statewide assessment, taking into account environmental considerations, then designate geothermal resource subzones as the only land areas in which geothermal activity could take place. No EIS was required for this process.
- * In 1983, the USDOE evaluated the environmental effects of the planned initial feasibility study for the Hawaii Deep Water Cable Project (HDWC) in accordance with requirements of NEPA and determined that neither an EA nor an EIS was required. HDWC was a multi-million dollar, multi-year research and development project to determine the technical and environmental feasibility of an inter-island transmission system. The only significant HDWC field activity in Hawaii was the deployment and retrieval of a 6-mile long "surrogate cable" (a non-energized wire rope) completed in December 1989 in the Alenuihaha Channel.
- * In 1986, although an EIS was not required, the Mayor of the County of Hawaii accepted an EIS for a 25 MW geothermal project in lower KERZ by Puna Geothermal Venture. Construction commenced in October, 1990 and is expected to be completed in 1991.
- * In 1987, the State completed an EA for the inter-island cable system. This document was not required but was done to pull together all the environmental considerations for the cable system.
- * In 1989, the University of Hawaii completed an EA with a finding of a no significant impact for four to six scientific observation holes (SOH) within pre-designated geothermal resource subzones. The SOH program commenced in late 1989 and is expected to be completed in 1991.
- * In 1989, the State completed a comprehensive environmental review for a 500 MW geothermal project.
- * In February, 1990, the State awarded a contract to ERC Environmental and Energy Services Company to prepare a master development plan, conduct an overland transmission corridor analysis, and prepare an EIS for the large cable geothermal/cable project. The draft EIS will be scoped in early 1991, and an informational meeting conducted to

receive public input.

Studies performed to date for the geothermal/cable project have been preliminary feasibility studies, which have been conceptual in nature and non-specific with respect to lands to be used and project components.

In October 1990, the U.S. Congress appropriated \$5 million for Hawaii geothermal resource verification and characterization. The administering federal agency, which will likely be the U.S. Department of Energy, will have to decide, before allocating these funds, if an EA or EIS is required.

It is likely that certain federal permits will be required in the future, especially for the cable segment of the geothermal/cable project. These include Army Corps of Engineers and National Marine Fisheries Service permits. Pursuant to the Geothermal/Cable Permitting Act of 1983, the State Department of Land and Natural Resources has consulted with all federal agencies through the interagency group established purposely for this project.

This paper was prepared by Dean Anderson and Gerald Lesperance for discussion purposes only and does not necessarily reflect the official position or policy of the Waihee Administration.

DRA:envrn.doc

CONTENTS

INTRODUCTION

PROGRAM DEVELOPMENTS

Background

GEOHERMAL/CABLE SYSTEM DEVELOPMENT STATUS

Request for Proposals
Hawaii Deep Water Cable Program
Master Development Plan

CURRENT STATUS OF GEOHERMAL DEVELOPMENT ACTIVITIES

True/Mid-Pacific Geothermal Venture
Puna Geothermal Venture
The Hawaii Scientific Observation Hole (SOH) Program

PROPOSED GEOHERMAL DEVELOPMENTS

HGP-A Steam Sale to Puna Geothermal Venture
Joint Interagency Monitoring Team

OTHER ACTIVITIES

Mitigation and Monitoring Workshop
1990 International Symposium on Geothermal Energy
Newspaper File

FUTURE PLANS FOR INTERAGENCY GROUP

1990 STATISTICS

APPENDICES

Appendix A - Act 301, Session Laws of Hawaii 1988
Appendix B - Chapter 185, Hawaii Administrative Rules
Appendix C - Geothermal/Cable Development Consolidated Permit
Application Form
Appendix D - Draft General Guidelines for Processing the
Consolidated Permit Application
Appendix E - Draft Joint Agreement
Appendix F - "Geothermal and Cable Development Permitting
Act", paper presented by at the Geothermal
Resources Council 1990 International Symposium
on Geothermal Energy in Kailua-Kona, August 21,
1990

PROGRAM DEVELOPMENTS

Background

During the first year after Act 301, SLH 1988, entitled the "Geothermal and Cable System Development Permitting Act of 1988" went into effect, the Department completed the steps of forming the Interagency Group called for in the Act, hiring staff, preparing administrative rules, and establishing a Permit Center. All these actions were in anticipation of a major project application being received by the Department during 1990, and being processed by the Interagency Group during that time frame.

Due to unanticipated delays, however, no application was received during the second year of the program. Therefore, this period was spent in further refining the draft consolidated application form (see Appendix C) and analyzing further what additional permits might be required, and making them available in compendium form at the Division of Water Resources Management, Department of Land and Natural Resources, and in preparing procedures for carrying out an efficient coordinated review of an application (see Appendices D and E). An effort was made to monitor developments relating to the anticipated 500 megawatt geothermal/cable project. The various developments are summarized in the following sections.

GEOHERMAL/CABLE SYSTEM DEVELOPMENT STATUS

Request for Proposals

The Hawaiian Electric Company's Request for Proposals issued in May 1989 called for two responses, one technical and one commercial, due November 1, 1989 and December 1, 1989, respectively.

Five proposals were received and evaluated by a team headed by Hawaiian Electric company and comprised of selected consultants, and selected State agency personnel.

The proposals were evaluated twice, resulting in the same short listing of two firms in January 1990. One firm has since dropped out of consideration, and negotiations between Hawaiian Electric Company and the remaining firm, Mission Power of California, are ongoing as of this writing. Due to the slow progress of negotiations with Mission Power, Hawaiian Electric Company has given up on its hope of signing a power purchase contract by the end of the year, and instead hopes to conclude an arrangement some time in 1991.

Hawaii Deep Water Cable Program

In September 1990 a contract was completed to study the technical feasibility of an interisland cable system that would be able to carry 500 megawatts of electricity between the islands over

some 200 miles at depths of up to approximately 7,000 feet, and that would have a life expectancy of 30 years. Two types of tests took place - laboratory tests, completed in November 1988, and at-sea tests that were completed in November 1989. In both tests, the type of cable to be used met or exceeded the established requirements.

Master Development Plan

The notice of preparation for a programmatic environmental impact statement and for a federal National Environmental Policy Act environmental impact statement will be submitted in early 1991 upon completion of the majority of the activities in the master development plan and transmission corridor route selection process. At this time, the Master Development Plan has been prepared in draft form. The process of developing this plan has included extensive public participation.

CURRENT STATUS OF GEOTHERMAL DEVELOPMENT ACTIVITIES

True/Mid-Pacific Geothermal Venture

The True/Mid-Pacific Geothermal Venture project continues to drill from the site of their current well pad. It is anticipated that it will take several more exploratory wells to determine whether there exists a viable resource of sufficient quantity and quality to supply a power plant facility. Plans are in preparation to move to a new site, pending approval of the Department of Land and Natural Resources. The 1986 CDUP permit authorizes the incremental development of up to 100 megawatts of geothermal energy capacity. There has been no change in the company's plan to negotiate a contract to sell 25 megawatts of power to the Hawaii Electric Light Company once the resource is proven.

Puna Geothermal Venture

The Puna Geothermal Venture project began clearing operations for the project well fields and power plant site in September 1990. The last of the 51 permit conditions imposed by the Hawaii County Planning Commission's Geothermal Resource Permit were met with approval. A Geothermal Asset Fund is currently being established by the County of Hawaii for the purposes of geothermal impact mitigation within the District of Puna.

The Hawaii Scientific Observation Hole (SOH) Program

The Hawaii Natural Energy Institute of the University of Hawaii is directing a Scientific Observation Hole (SOH) program. The SOHs are for scientific observation and monitoring purposes only. The holes will not be flow tested or produced. The information to be gained from the SOHs will provide an assessment of subsurface geological conditions, ground water level and composition, temperature, drilling conditions, an inventory of possible mineral and geothermal resources, and an eruptive history

of the island to the depth drilled. The SOHs, in combination with existing geothermal wells or future geothermal wells to be drilled by producers, can be instrumented to provide data relating to reservoir productivity, and to monitor changes in ground water conditions and volcanic activity.

One of four approved exploratory wells has been completed, and a second is under way at the time of this writing.

PROPOSED GEOTHERMAL DEVELOPMENTS

HGP-A Steam Sale to Puna Geothermal Venture

In accordance with the proviso of Section 70A, Act 299, SLH 1990, the State of Hawaii Department of Land and Natural Resources provided \$250,000 to the County of Hawaii for the State's share of the community assistance fund, also referred to as the Geothermal Asset Fund.

This contribution satisfies condition 51 of the County of Hawaii Geothermal Resources Permit No. 2 regarding the State's participation in an asset fund to be administered by the County of Hawaii, with Puna Geothermal Venture and the State contributing.

The State's initial contribution of \$250,000 will be reimbursed once revenues are realized from the proposed sale of steam to Puna Geothermal Venture, less any revenue entitlements to the Office of Hawaiian Affairs.

Negotiations between the Natural Energy Laboratory of Hawaii Authority and Puna Geothermal Venture for the sale of steam from the State Experimental Geothermal Well HGP-A are currently underway.

Joint Interagency Monitoring Team

The Department has initiated efforts to coordinate and establish an integrated monitoring team to monitor and regulate geothermal activities in the Puna district. This team will combine State departmental resources and personnel and will cooperate with and offer assistance to Hawaii County agencies. The Natural Energy Laboratory of Hawaii Authority (NELHA) has been requested to explore the possibility of using portions of the net revenues from the future sale of steam from the HGP-A well to acquire additional monitoring equipment.

As of this writing, there have been two meetings of this group; an inventory of monitoring equipment has been prepared and plans for cross training of selected personnel have been proposed. A geothermal program planning workshop is being planned.

OTHER ACTIVITIES

Mitigation and Monitoring Workshop

In June 1990 the U.S. Department of the Interior and the U.S. Environmental Protection Agency jointly sponsored a workshop on mitigation and monitoring. The Department took this opportunity to alert the members of the Interagency Group about the meeting and coordinate with the sponsoring agencies attendance by members of this group. The workshop proved very informative especially with regards to the requirement for a federal environmental impact statement.

1990 International Symposium on Geothermal Energy

In August 1990 the Geothermal Resources Council held its international symposium in Kailua-Kona, Hawaii. The symposium was co-chaired by William F. Quinn, Chairman of the Governor's Advisory Board on the Geothermal/Cable Project. There were presentations concerning geothermal development in Hawaii in which 15 papers were presented on current geothermal issues in the State. A paper entitled "Geothermal and Cable Development Permitting Act" was presented at the symposium (see Appendix F) which summarized the role of the Interagency Group and its progress to date.

Newspaper File

A chronological file of newspaper articles regarding geothermal activities in the State of Hawaii has been maintained. The file has been useful in monitoring and assessing public information and opinion regarding the proposed geothermal/cable project.

FUTURE PLANS FOR THE INTERAGENCY GROUP

The Interagency Group for Geothermal and Cable Development Permitting has finalized the consolidated application permit form, and has drafted operating procedures to be utilized when an application is submitted for the proposed geothermal 500 megawatt/interisland undersea cable project. The group will meet to finalize operating procedures and receive updates on current geothermal activities.

It is anticipated that such an application will be received after the Hawaiian Electric Company has completed its negotiated power purchase agreement with the selected consortium in 1991.

To date, no identifiable problems have arisen with regard to the consolidated permitting procedures. Accordingly, the Department recommends neither any changes to the present consolidated permit application and review process nor any change to the statute at this time.

1990 STATISTICS

The following are statistics of activities accomplished by the Geothermal/Cable System Development Program staff for the period January through October 1990.

1. Assistance Rendered	76
2. Investigations Undertaken	20
3. Meetings Coordinated/Attended	20
4. Special Reports Completed	7

APPENDIX F

"Geothermal and Cable Development Permitting Act", paper presented at the Geothermal Resources Council 1990 International Symposium on Geothermal Energy in Kailua-Kona, August 21, 1990